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**STATED PREFERENCE ECONOMIC DEVELOPMENT
MODEL**

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STATED PREFERENCE ECONOMIC DEVELOPMENT MODEL

SUMMARY

THE PROJECT PURPOSE was to test an alternative methodology, contingent valuation, to prioritize and select development projects based upon estimates of their relative benefits to the general population.

THE PROJECT SPONSOR was CAA.

THE PROJECT OBJECTIVES were to:

(1) Create a methodology to estimate the net social benefit of nonlethal coalition projects at the project and program level.

(2) Determine whether or not contingent valuation methods (CVM) can be applied in cash-poor conflict environments.

THE SCOPE OF THE PROJECT entailed:

(1) A test of the cognition, understanding, and applicability of CVM in rural Afghanistan. SPED is not a full contingent valuation study.

(2) Primary data collection in Afghanistan by the U.S. Army Human Terrain System in October 2011.

(3) Calculation and comparison of the return on investment for eight hypothetical development projects. The impacts of nonlethal actions on violence, intelligence gathering, or factors other than social well-being are not analyzed.

THE PROJECT EFFORT was conducted by Mr. Kevin Griffith.

COMMENTS AND QUESTIONS may be sent to the Director, Center for Army Analysis, ATTN: CSCA-OA, 6001 Goethals Road, Suite 102, Fort Belvoir, VA 22060-5230.

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1 ABSTRACT

The United States Government has provided over \$51 billion in aid to Afghanistan since 2002. There is a lack of data and methods to determine the net social benefit of this aid. Additionally, currently available data are insufficient to properly prioritize the usage and award of this aid. The Stated Preference Economic Development Model (SPED) involved the creation of tools that estimate the net social benefit of projects using cost-benefit techniques referred to as contingent valuation methods (CVM). Additionally, SPED estimated the net social benefit of several different types of development projects in Afghanistan.

CVM is a survey-based economic technique for the valuation of resources where market prices do not exist. This method has been used in numerous developed and developing countries to determine the net social benefit of publicly-funded projects such as environmental cleanup, parks, sanitation services, and water supply services. The SPED project is the first application of this technique to development projects in an irregular warfare environment.

SPED was a joint effort with the U.S Army Human Terrain System (HTS) and involved a significant survey effort in Afghanistan that produced an empirical dataset showing how different population groups value several different classes of development projects. However, the study's methodology can be tailored to value any set of nonlethal actions. SPED can help strategic, operational, and tactical commanders to prioritize development aid; estimate the impact of nonlethal actions on civilian attitudes; determine the net social benefit of projects or programs; and validate subjective information on population priorities that is obtained through existing channels.

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2 GENESIS OF THE PROJECT

2.1 Initial Project Proposal

As of March 2012, Congress has provided \$89.5 billion in humanitarian and reconstruction funding for Afghanistan. \$3.44 billion of this aid has been allocated to the Commander's Emergency Response Program (CERP). More than 16,000 development projects have been started in Afghanistan since 2005 (Boak, 2011).

Development projects in Iraq & Afghanistan have been the subject of intense scrutiny from both within and outside of the Department of Defense. Numerous analytic efforts have been conducted or are currently in process to determine the effectiveness of aid.

These efforts have focused almost exclusively on post hoc assessments of the security benefits of this development aid. Results have been mixed; projects appear to provide benefits only under certain conditions such as a sufficient level of security, adequate project oversight, strong local buy-in, and the absence of negative externalities.

The impetus behind the SPED project is two-fold. First, it seeks to close a gap in analysis and allow decision makers to identify and select projects that provide the greatest net social benefit, as opposed to an analysis of outcomes after the project is completed. Second, it leverages Mr. Griffith's experience and brings economic principles into the selection of development projects.

SPED was designed to achieve two objectives: create a methodology to estimate the net social benefit of nonlethal coalition projects, and determine whether or not CVM can be applied in cash-poor conflict environments to evaluate potential projects.

2.2 Status Quo Project Selection

When the war in Afghanistan began, U.S. and North Atlantic Treaty Organization (NATO) forces lacked precise information about the complex web of cultural and historical influences that were impacting events on the ground. Doctrine and pragmatism dictated that development projects could be used in the counterinsurgency effort to repair battle damage, win hearts and minds, and put Afghanistan back on a path towards stability (Johnson et al., 2012).

Decision makers initially had to guess and apply their westernized viewpoints in order to select projects. This created problems because the community needs perceived by foreign soldiers frequently did not match up with the need and desires of Afghan residents. Some projects were completed without local buy-in and did not achieve their desired economic or security outcomes.

Communication and cultural understanding evolved over time, and soldiers and civil affairs teams regularly meet with key leaders to discuss needs in their local areas. Troops also use tools such as the Tactical Conflict Assistance Framework (TCAF) to survey the local population and select development projects based upon the results (Wilson & Conway, 2009). Where used, this has improved project selection and assured that there is at least some buy-in from the population.

However, the TCAF and other current methods of eliciting feedback from the local population regarding development projects have several flaws. Survey efforts, such as TCAF, that ask respondents to rank order preferred alternatives do not measure intensity of preference (Kress & Cook, 1985). Surveys are often limited to key leaders or those citizens that are willing to speak

to uniformed American personnel. The use of non-native interviewers and unsound survey techniques may severely bias the results. Additionally, the types of questions asked are highly abstract and lack clarity, making it more difficult for respondents to answer thoughtfully and accurately (Alreck & Settle, 2004).

Despite these advances, some proportion of projects is still selected without local input or buy-in. One highly salient example of a failed project is discussed in the following section.

2.3 Jadriya Lake Water Park Example

During the spring of 2008, U.S. Army GEN David H. Petraeus reportedly was on a helicopter ride above the city of Baghdad and gazed upon a dried up lake that was a blight upon the city. This was the remnants of the Jadriya Lake Water Park, which was built near the end of Saddam Hussein's reign in Iraq (figure 1).



Figure 1 - Jadriya Lake Water Park before reconstruction

The park fell into disrepair when Saddam's regime collapsed. Petraeus decided to commit personnel and \$1 million for it to resume operation so all of Baghdad could enjoy its facilities. When the park reopened months later there were local dignitaries, marching bands, painters, other entertainers, and approximately 2,250 attendees (figure 2).



Figure 2 - Jadriya Lake Water Park Grand Reopening

This was touted as demonstrating that Iraq had returned to normalcy and had sufficient security to permit people to leave their homes and visit the park. However, this ignored the fact that approximately 50,000 people had attended the park on weekdays and many more on weekends under Saddam's rule.

Religious leaders soon objected to the park's presence. Power was cut to the area in 2009, so the pumps stopped working. The park quickly fell into disuse and disrepair (figure 3). According to a January 2011 article in the Washington Post, "Baghdad park is nearly waterless ... Much of the compound is in ruins, swing sets have become piles of twisted steel, and the personal watercrafts' engines have been gutted for spare parts (Londono, 2011)."



Figure 3 - Jadriya Lake Water Park 2 years after reconstruction

Project selection did not address local buy-in or sustainability. After spending \$1 million in funding and precious military resources, Jadriya Lake has returned to being an eyesore for Iraq and a public relations failure for the United States.

As we have learned, the local population will never refuse a handout. This raises several challenging questions. What could have been done differently? How could we have objectively determined local buy-in? How can we tell if they truly value the project enough to maintain it for continued use? This is just one story from Iraq, but any civil affairs veteran will have many more to share. Additionally, reports from the Special Inspectors General for Iraq and Afghanistan have identified a large number of projects that were either ill-conceived or failed to meet their objectives (Special Inspector General for Iraq Reconstruction (SIGIR) and Special Inspector General for Afghanistan Reconstruction (SIGAR), 2011).

2.4 Key References

The stated preference technique is not new; the underlying theory was proposed in 1947 and the first practical application occurred in 1963 (Carson & Hanemann, 2004). Since that time, there have been hundreds of additional studies that have used different variations of CVM (Whittington, 2010). A full list of works referenced and consulted for this report is available in the Appendix D although three were influential enough to warrant special discussion here.

CVM increased in popularity up through the 1980s and were used in federal studies and cited in courtroom proceedings. The widespread variation of CVM amongst different scholars fueled controversy over their accuracy. Compounding the problem, no manual of best practices for the technique existed at the time. This led to the creation of a panel by the National Oceanographic and Atmospheric Association (NOAA), which featured a number of well-known economists and included two Nobel laureates – Kenneth Arrow and Robert Solow. The panel studied the available literature and stated that CVM can be useful if properly constructed (Arrow et al., 1993). Their recommendations included the following, which were incorporated into this study:

- Use personal interviews to conduct the survey, as opposed to telephone or mall-stop methods.
- Design surveys in a yes or no referendum format put to the respondent as a vote on a specific tax to protect a specified resource.
- Give respondents detailed information on the resource in question and on the protection measure they were voting on. This information should include threats to the resource (best- and worst-case scenarios), scientific evaluation of its ecological importance and possible outcomes of protection measures.
- Carefully explain income effects to ensure respondents understood that they were to express their willingness to pay to protect the particular resource in question, not the environment generally.
- Ask subsidiary questions to ensure respondents understood the question posed.

The next key resource was an article by Chang et al. (2009) that compared the results of CVM surveys with actual behavior once the projects were completed. Attempts to validate the results of CVM are plagued with challenges – the technique is generally used to value goods and services that are not traded in the marketplace and, ipso facto, do not have market information that could be compared with their hypothetical valuations. Their research found a limited number of cases where a CVM study was conducted, the project in question was completed, and respondents were then charged to use it. The authors found that the results of the hypothetical CVM surveys closely matched real-world behavior.

Surveys in developing countries generally require special considerations, and contingent valuation is no exception. Significant numbers of CVM studies have now been conducted in these countries, and Dale Whittington has put out a number of excellent lessons-learned documents. Whittington (2010) is a seminal work that provides best practices for CVM in the developing world based upon his own fieldwork and that of other practitioners. The lessons identified therein greatly influenced SPED's research design. These included:

- Ensure proper training of the interview team.
- Construct meaningful and detailed project narratives.
- Test for effects of variations in survey design (sensitivity analysis).
- Match the referendum format to the type of good being considered.

Additionally, the United States Army Training and Doctrine Command (TRADOC) Analysis Center's Complex Operations Data Development Activity (TRAC-CODDA) was instrumental in locating contextual data for this project. Special thanks are owed to Robin Griffen, Sarah Lechtenberg-Kasten, Kenneth Stowell, and their forward-deployed staff in Afghanistan. They accepted and fulfilled three requests for data over the course of the project, helping answer challenging questions such as:

- What types of projects are being conducted under the Commander's Emergency Response Program?
- What are the details of the project (location, cost, time, etc.)?
- How do Afghans perceive and value development projects?
- What is the average wage rate for the different provinces of Afghanistan?

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3 CONTINGENT VALUATION

3.1 Overview & Early Applications

Contingent valuation methods are survey-based economic techniques that allow a researcher to place a value on a good, service, or resource where market prices do not exist. This section and subsequent entries in this chapter will provide a brief overview of CVM as well as a practical example and the underlying math formulas.

In a CVM study, respondents are presented with a hypothetical project narrative that includes estimates of costs, benefits, risks, and other relevant information that allows the reader to visualize the project. This project can involve nearly anything – digging a well, asphaltting a road, protecting a forest, pollution, etc.

Respondents are then asked a series of questions to help determine how much value they place on the project. If the project is viewed as a positive improvement, then respondents will be asked to state their willingness-to-pay (WTP), which is the maximum amount they would be willing to contribute to support the project. If the project is expected to negatively impact the population (e.g., will cause pollution or damage to the environment), respondents can be asked their willingness-to-accept (WTA), which is the maximum amount they would be willing to pay to accept the negative consequences of the project. These ‘bids’ can be aggregated and extrapolated to the rest of the affected population. For a more complete description of these calculations, see section 3.3.

CVM has been heavily used by the U.S. Army Corps of Engineers (USACE), the U.S. Agency for International Development (USAID), and myriad nongovernmental organizations (NGOs). USACE published the first manual for government personnel to use CVM for cost-benefit analyses due to its growing popularity and use (Carson & Hanemann, 2004).

These studies were intended to demonstrate whether or not the projects in question provided a net social benefit – where benefits accruing to the population exceed the project’s costs. For example, USACE and USAID had received criticism during the 1960s and 1970s that the benefits of their expensive resource and development projects could not be measured. CVM helped fill this gap, and has been used extensively in federal cost-benefit analyses. NGOs were eager to demonstrate the value of their work and embraced CVM as a tool to showcase what they provide to potential donors.

Twenty years ago, it was believed that CVM would not work in developing countries. Researchers doubted the ability of poor, illiterate, and remote respondents to comprehend and answer the hypothetical scenarios and WTP questions. However, studies have repeatedly demonstrated that this is not the case. Researchers in developing countries have instead found that in many ways CVM research is actually easier to conduct there. Studies generally have higher response rates when compared to similar studies conducted in the west. Respondents are more giving of their time and are described as being better listeners. Additionally, studies are also cheaper to conduct so that larger sample sizes can be taken advantage of in developing countries (Whittington, 1998).

3.2 Glen Canyon Dam Example

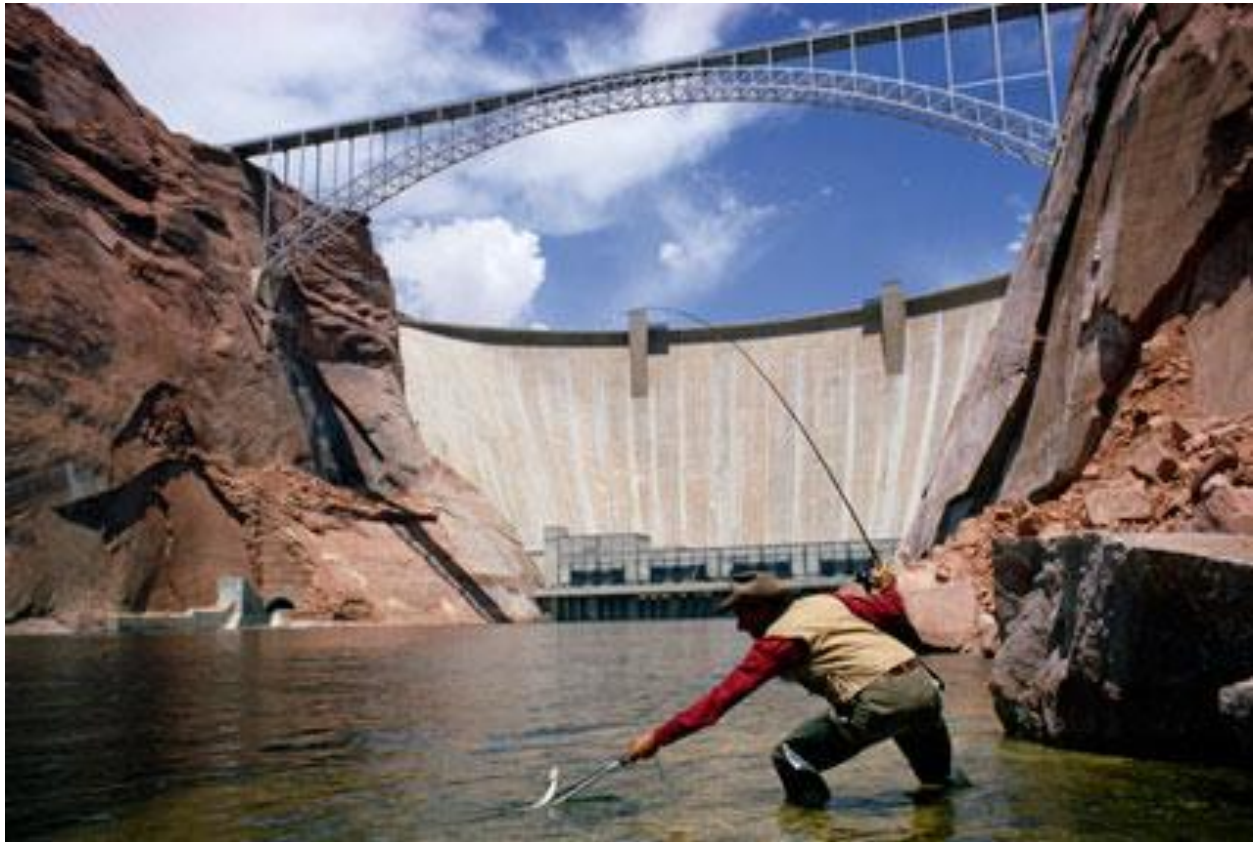


Figure 4 - Glen Canyon Dam

The Glen Canyon Dam is located on the Colorado River in northern Arizona. It is an important source of electricity, providing much of the area's power during peak hours of daily consumption. The U.S. Department of the Interior (DOI) had been fielding complaints that the dam was holding back too much water, damaging the downstream ecosystem and reducing the river's value for recreational use. DOI ordered a study in 1989 to determine the river's recreational value at alternate flow rates.

There is no market for this recreational use since the river is a free and publically accessible resource. Contingent valuation was used to determine the social benefit of increased water flow. The resulting survey of potential users allowed researchers to estimate the recreational and other benefits at seven different potential flow rate schemes. Respondents stated their WTP bids for each scenario along with how frequently they used the waterway and for what purpose.

The survey results were tallied and extrapolated to the estimated population of potential users, and then compared with the increased generation costs that would result from releasing more water through the dam. The recreational and other benefits from the optimal flow rate scheme were calculated to be \$77.4M per annum (Welsh et al., 1988).

This example represents one of the first federal cost-benefit analyses that allowed for 'non-use values' – respondents that were willing to contribute to protect the resource even though they did

not use it themselves. It was also one of the first instances where recreational values were included in a federally-funded economic analysis.

The final flow-rate decision was determined by a complex set of factors and politics, although the final result closely resembled the recommendations. But whatever the impact of CVM, it changed the conversation – the decision was no longer seen as a zero-sum game between hydropower proponents and recreational users. The problem was now seen as an optimization problem where decision makers sought to maximize public value.

3.3 Underlying Theory

This section contains a brief overview of the underlying theory; please see Carson & Hanemann (2004) for a full treatment.

Economics assumes that consumers seek to maximize their utility given an income constraint. Consumers use their incomes to purchase a portfolio of goods and services that they feel will provide them with the highest possible utility

Let's assume that an individual is choosing whether or not to purchase more of a particular good. The decision can be expressed mathematically:

$$u_0 = f(p, q_0, y)$$

$$u_1 = f(p, q_1, y)$$

In this case, u_0 is the utility that the person would have by not making the purchase. It can be represented as a function of price p , quantity q , and the person's income y . Price and income are assumed to be held constant in this example. u_1 is the utility that the person would have if they purchased an additional amount of the good.

$$\Delta q = q_1 - q_0$$

$$\Delta u = u_1 - u_0$$

Here, Δq represents the additional quantity purchased and Δu represents the additional utility gained. The individual would make the purchase if and only if Δu is greater than the opportunity cost – the maximum utility that could be achieved if the individual spent their money elsewhere.

The contingent valuation methodology attempts to measure this Δu in dollar terms. An individual's stated WTP is a function of the change in quantity of some good or service, its cost, and the individual's income constraint. CVM assumes that this WTP bid is a dollar-value measurement of the utility that the individual would gain.

$$\Delta u = WTP(q_0, q_1, p, y)$$

CVM survey responses can be extrapolated to the general population via two methods in order to determine the social benefit of a particular project. If the researcher has sufficiently strong evidence that their sample is representative of the study population, then the sample average for WTP can simply be multiplied by the number of people in that population to determine the total benefit.

If representativeness cannot reasonably be assumed, then the researcher must take several additional steps. The CVM survey should be designed to collect additional information about the respondents. This can include income, age, gender, ethnicity, location, how much they use

the good, or any other factor that the researcher assumes a priori may have an impact on WTP bids. A regression of the following form can then be specified:

$$WTP_i = \alpha + \beta_{ija} + \beta_{ijb} + \dots + \beta_{ijz} + \varepsilon$$

WTP serves as the dependent variable and is regressed against the range of other factors that were collected during the survey. The regression is then ran a second time after dropping the factors that did not initially show up as statistically significant. The significant factors and their beta coefficients, β_{ij} , are noted.

Information about these factors is then gathered about the remainder of the study population that was not included in the study sample. This can be individual or community-level information. Once this information is known, the β_{ij} can be applied to their factor scores to estimate the WTP for the entire population.

4 BENEFIT TRANSFER

4.1 Overview

The Benefit Transfer (BT) method is an extension of traditional CVM that transfers available information from an existing CVM study to a new context. For example, the survey results used to determine a project's value to one village can be extrapolated to determine the project's to another village that was not in the original study population.

BT is often used when there is neither adequate time nor funding available to conduct an additional CVM study. CVM is preferable whenever it is a feasible option.

The accuracy and quality of BT analysis is highly dependent upon the degree of similarity between both projects and populations. The researcher must first assume that the project in the BT analysis is sufficiently similar to the original project used in the CVM study. The results become less reliable as differences widen.

Additionally, the researcher must also determine the degree of difference between the BT and CVM populations. If the two study populations are nearly identical, results may be able to be generalized to both. If they are different, then the researcher will need to account for those differences (see sections 3.3 and 4.3). If there are yawning differences, then the entire BT study should be treated as suspect because there is an increased risk that omitted confounding factors will throw off the results.

4.2 Practical Example



Figure 5 - Petroglyph National Monument

Ulibarri & Ulibarri (2010) conducted a BT analysis to determine the public benefit of the Petroglyph National Monument in terms of recreational and non-use values. Petroglyph is a 17-mile site near Albuquerque, New Mexico that features dormant volcanoes, hundreds of archaeological sites, and approximately 24,000 images carved into rocks by Pueblo Indians and early Spanish settlers.

The researchers located three BT/CVM source studies that guided their analysis. These studies focused on the recreational values associated with day hiking in the United States; rock art in Manitoba, Canada; and Aboriginal cultural sites containing rock art in Queensland, Australia.

The researchers calculated the public benefit associated with Petroglyph by extracting the value for day hikes from the first study, the added value of rock art from the second study, and the non-use values from the third study. Ulibarri & Ulibarri found that the park provided \$3.75-\$7 million annually in recreational benefits in addition to \$12.5 million in non-use benefits.

4.3 Underlying Theory

Benefit transfer is an extension of contingent valuation. The calculations in a BT analysis are nearly identical to that of a CVM analysis. Please refer to section 3.3 for detailed information on the underlying theory for CVM.

CVM survey responses can be extrapolated to a BT study via two methods. If the researcher has sufficiently strong evidence that the two study populations are almost identical, then the sample average for WTP from the CVM study can simply be multiplied by the number of people in that BT study population to determine the total benefit.

If representativeness cannot reasonably be assumed, then the researcher must take several additional steps. As standard practice, the CVM survey should have collected additional information about the respondents. This can include income, age, gender, ethnicity, location, how much they use the good, or any other factor that the researcher assumes a priori may have an impact on WTP bids. A linear regression of the following form can then be specified:

$$WTP_i = \alpha + \beta_{ija} + \beta_{ijb} + \dots + \beta_{ijz} + \varepsilon$$

WTP serves as the dependent variable and is regressed against the range of other factors that were collected during the survey. The regression is then ran a second time after dropping the factors that did not initially show up as statistically significant. The significant factors and their beta coefficients, β_{ij} , are noted.

Some CVM studies ask respondents a single Y/N question if they would be willing to pay a pre-determined amount. The dependent variable WTP_i is then binary and probit or logit regressions are generally used in this analysis.

Information about these factors is then gathered about the BT study population. This can be individual or community-level information. Once this information is known, the β_{ij} can be applied to their factor scores to estimate the WTP for the population as well.

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5 RESEARCH DESIGN

5.1 Overview

The SPED project involved cognitive interviews, focus groups, and face-to-face survey conducted in eight villages located spread throughout Afghanistan.

The hypothetical project narratives were constructed based upon feedback from cognitive interviews. Local experts knowledgeable in the development needs of each village were located for this task.

Focus groups were then held to receive feedback on the narratives, add additional detail, determine a priori estimates of each village's WTP, and identify potential issues that may be encountered during the survey.

Test polls were then conducted of 50 Afghans in each of the 8 villages. The survey was designed to test their willingness-to-pay for a hypothetical project in each village. Subsequent sections in this chapter discuss these steps in more detail.

Management of the survey in-theater was conducted by HTS. For information on this organization, visit <http://humanterrainsystem.army.mil>. Mr. Griffith submitted a formal request for data to the HTS program's Theater Coordination Element (TCE) in Kabul, Afghanistan in March of 2011. TRAC-CODDA served as the go-between for this request due to the proximity of their forward-deployed staff to the TCE in Kabul.

HTS accepted the request and agreed to fund the entirety of the fieldwork and provide project oversight. Glevum Associates were selected as the contractor to perform the fieldwork. This assistance greatly attenuated not only SPED's cost, but also the project's duration – HTS was able to leverage existing contract vehicles for the fieldwork, and CAA was able to avoid the contracting process entirely.

5.2 Staff & Training

Proficiency and quality of personnel is of heightened importance when the researcher is not able to directly supervise the work. Several provisions were included in the survey contract to address this issue.

- Supervisors possessed either a university education or a secondary school education and multiple years of management experience.
- Field research personnel were native to the local provinces in which they worked. This decision was made upon best practices in survey research and contingent valuation. Past research has demonstrated that respondents will alter their answers in order to minimize social distance with the interviewer (Blaydes & Gillum, 2011).
- Interviewers from four provinces were trained centrally at Glevum's offices in Kabul. The remaining interviewers were trained in their respective provincial offices. These training events included role-plays conducted with other interviewers and with supervisory staff. This training included techniques used to create a relaxed atmosphere and to encourage open and honest responses.

- Pilot interviews were then conducted with actual respondents under supervision.

5.3 Village Selection

Scenario Type	Village	District	Province	#Families	Estimated Population Size	Primary Ethnicity
Irrigation	Nangabad Badlo	Enjil	Herat	270	1,620	Tajik
Road Construction	Mukhtar	Lashkar Gah	Helmand	200	1,430	Pashtun
Jam & Juice Factory	Kala-e-Surkh	Saidabad	Wardak	150	910	Pashtun
Hydroelectric	Dasht-e-Sayeed	Bamyan	Bamyan	160	900	Hazara, Sadat
Dam and Flood Wall	Bahaderkhil	Urgoon	Paktika	122	714	Pashtun, Tajik
Drinking Water	Hajyanoo Kalay	Surkhrod	Nangarhar	*	*	Pashtun
Community Hall	Saidabad	Kunduz	Kunduz	359	2,000	Tajik
Agricultural	Sahi-e-kood barq (Pusht Bagh)	Dehdadi	Balkh	354	2,010	Tajik, Pashtun

Figure 6 - Selected Villages

Figure 6 is a table that contains information on the scenarios and villages that were selected for this study. Additionally, it also has estimates of the population size, dominant ethnicities, and the number of families within each village. The highlighted cells represent an oversight by HTS; population data were not captured for that particular village. This represents one of the risks of conducting this type of research from the rear. By the time results are returned to the research team and mistakes are found, the research has been completed and it is too late.

Surveyed Locations in Afghanistan



Figure 7 - Surveyed Locations in Afghanistan

Villages were selected in consultation with HTS through a purposive, non-probability sampling method based upon several factors including:

- Population size ($\leq 2,000$ residents)
- Economic modality
- Location
- Ethnicity
- Agricultural type
- Distance from provincial center

The intent was to reflect the rural and highly variable nature of Afghanistan. Villages were small, not in the immediate vicinity of provincial centers, and demonstrated wide differences in income sources, types of agriculture practice, and ethnic make-up. Figure 7 shows the locations of the surveyed villages.

5.4 Scenario Development

Key informants were interviewed in each of the eight villages to develop project scenarios based upon local needs.

The question set was determined jointly by HTS and CAA. It included nine questions intended to isolate cultural and cognitive idiosyncrasies that could impact the final survey's design. For example, how would respondents perceive the CVM questionnaire? Would they understand the concept of a hypothetical question? Additionally, informants were asked about the village's needs and experience with past economic development projects.

The following scenario topics were chosen for these districts, based upon the informant's feedback:

- Wardak: Jam & Juice Factory
- Paktika: Dam & Flood Wall
- Nangarhar: Drinking Water
- Kunduz: Community Hall
- Balkh: Agricultural Development
- Herat: Irrigation
- Helmand: Road Construction
- Bamyan: Hydroelectric

The development scenarios can be viewed in Appendix H.

5.5 Focus Groups

One focus group was then held in each of the eight villages. The intent of these meetings was to determine:

- Local perceptions of development needs. How divided are the community's priorities? How supportive is the group of the proposed scenario?
- Cognition of hypothetical scenarios. Did the group comprehend the scenario? Do they feel that respondents will understand the questions? How can we check their understanding?
- A priori expectations of villagers' WTP. What sort of resources will villagers provide, and in what amounts?
- How to best minimize the potential for false answers. One threat to CVM is strategic behavior (Carson & Hanemann, 2004). Some individuals will make protest bids, where they either understate or overstate their willingness-to-pay in attempts to influence the outcome of the study. Other respondents may be tempted to engage in yea-saying, where they answer the survey in a manner that they believe will please the interviewer or study sponsor. Some respondents are also tempted to give the answer they believe is socially expected of them as opposed to the answer that represents their own preferences.

- Preferred planning details. The narrative explaining the project scenarios will also give respondents information on who will be responsible for collecting monies, project oversight, maintenance, and other functions related to the project. How do villagers believe these issues should be decided?

The focus group question set was determined jointly by CAA and HTS. HTS staff possesses extensive field research experience and local knowledge. HTS provided background and context as well as advice related to local sensitivities and perceptions. CAA's primary function was to ensure that the question set adhered to existing theory and best practices in the CVM literature.

HTS recruited focus group participants based upon feedback from CAA. Participants were to be recruited from the local population and exclude local leaders that could bias the discussions. Participants were selected to maximize variation in age, education, and employment type. The focus groups included students, development shura members, farmers, shopkeepers, elders, and more.

Project types were not altered as a result of this feedback. Several groups had dissenters that believed development aid should be focused elsewhere; but these groups did not identify majority-supported alternatives. Additionally, this allows for the survey results to be compared against the focus group's feedback with the a priori expectation that villages with divided priorities will have lower contributions and vice versa.

5.6 Test Polls

The final survey was developed based upon the feedback of the focus groups and the best practices of the literature, as identified by Whittington (2010) and the NOAA panel (Arrow et al., 1993).

5.6.1 Survey Format:

The questionnaire contained a total of 74 questions. Seventeen of these were substantive questions regarding the project scenario or other world perceptions. Thirteen were demographic and asked about age, gender, household size, etc. The remaining 28 were management and quality control questions that were filled out by the interviewer such as the interviewer's identifying code, the number of people present during the interview, etc. Survey completion time averaged approximately 45 and ranged from 27 to 70 minutes.

Follow-up cognitive interviews were conducted with 10% of respondents. This questionnaire contained up to 16 questions, including between 2 and 7 diagnostic questions and 7 additional management and quality control questions. The number of questions asked was dependent on the respondent's earlier answers. Interview completion time averaged approximately 49 minutes and ranged from 37 to 60 minutes.

The follow-up interviews are a best practice in survey design (Arrow et al., 1993). The results allow the researcher to perform a check on understanding and ensure that the respondents are interpreting the questions as expected and are able to provide rational answers. Additionally, the questions allow the researcher to deconstruct a respondent's thinking and observe how respondents develop their answers to the survey questions.

Full copies of the poll and follow-up interview format are located in Appendices F & G, respectively.

5.6.2 Payment options:

The test polls allowed respondents to provide five different types of contributions towards the project – cash, labor, land, food, or tools. These alternative WTP measures were included as one of the best practices of CVM (Whittington, 2010). Villagers are often quite cash-constrained and the alternatives allow them to make contributions to the project and reduce the number of zero WTP bids.

Respondent's cash WTP was measured through the use of a series of Y/N questions. The Y/N format was used based upon best practices of the CVM literature (Arrow et al., 1993). The interviewer first asked if the respondent would be willing to pay 5 Afghani. If the respondent answered in the affirmative, the interviewer repeated the question with increasing amounts up to a maximum of 4,000 Afghani. The series of questions concludes upon the first negative response received.

The Y/N format is recommended because past experiments have shown that respondents have difficulty providing reliable answers if the WTP question is asked in an open-ended format. SPED utilizes a hybrid design; the Y/N questions are presented first to provide a defined range to the respondent, and are then followed up with an open-ended question that asks the respondent to provide a maximum WTP for the project. In all cases, the responses to the open-ended question were consistent with the answers to series of Y/N questions.

Respondent's labor WTP was measured in a manner similar to cash. Respondents were asked a series of Y/N questions that started with contributing less than a day per week and maxing out at 7 days per week.

WTP for land, food, and tools was measured in a simple Y/N format. Respondents were asked if they would be willing to donate land to be used for the project site, a portion of their harvest to feed project workers, or tools for use in the project.

5.6.3 Sampling Design:

The test polls utilized a combination of convenience sampling and snowball sampling to locate respondents. Convenience sampling is a technique where interviewers solicit interviews at public places such as markets and mosques. Snowball sampling is a technique where, after a successful interview, the interviewer asks the respondent to suggest others who would be willing to participate. An excellent reference on social research methods is the Research Methods Knowledge Base, available at <http://www.socialresearchmethods.net/kb/>.

Both convenience sampling and snowball sampling are non-randomized sampling designs. These methods were chosen for two reasons. First, the choice was due to the difficulty and expense involved to conduct random sampling in rural Afghanistan. Second, random sampling is unnecessary for a proof-of-concept study such as SPED. A full CVM study would require either random sampling or detailed demographic and background information to be captured both on respondents and for the community-at-large. Otherwise, the results could not be generalized (see section 3.3).

The survey was limited to males except in Bamyan due to cultural sensitivities.

5.6.4 Oversight:

Survey efforts are tricky endeavors, especially so in Afghanistan. Several quality control measures were utilized to verify and ensure the validity of results.

SPED included high levels of supervision. 40.8% of all interviews were directly observed by supervisors. 24.3% of interviews were then back-checked by the provincial office.

A cheap talk script was used to reduce hypothetical bias. Hypothetical bias is a phenomenon that can potentially occur in CVM studies where respondents inflate estimates of their WTP because of inattention to their personal budget constraints or the knowledge that they will never actually need to pay the given amount. The wording of the cheap talk script was adapted and translated based upon that used in Cummings & Taylor (1999). It is read aloud by the interviewer during the survey, immediately preceding the questions pertaining to WTP. The script outlines a story of a study conducted in a similar village, where people overpromised and then did not actually contribute their given amounts to the project. Past studies have shown that this script depresses WTP bids and increases the survey's accuracy, and is seen as a best practice in CVM (Whittington, 2010).

The diagnostic questions utilized in the follow-up cognitive interviews also provide a type of oversight. The questions probe the respondents' thought processes behind their WTP bids to identify potential protest bids and ensure that they properly understood the questions that were being asked.

5.7 Assumptions & Limitations

SPED included several assumptions and limitations. Some of these are a feature of all CVM studies, while others are case-specific.

5.7.1 Assumptions:

The first primary assumption is that hypothetical valuations are highly correlated with actual valuations. SPED, like most other CVM studies, can only ask a respondent about their WTP. Since respondents do not actually have to pay their given bid amounts, it is impossible to verify these bids. The reasonable assumption is made that the stated bids are accurate based upon research such as that by Chang et al. (2009).

The second assumption is that respondents accurately represent the beliefs and intentions of their respective households. The calculations contained later in the Analysis chapter of this document assume that the respondent's answered the WTP questions with the amount that their household would be willing to pay, not individually. This is assumed due to practical limitations of the sampling design, but also due to the nature of rural Afghanistan. Families make decisions, not individuals, and women and children would often not be allowed to contribute to the project in a meaningful fashion.

5.7.2 Limitations:

SPED is not a full CVM study – it is a proof-of-concept for use of the methodology in Afghanistan and other conflict environments. The purposive, non-probability sampling design does not allow for margins of error to be calculated. All estimates of net social benefit must be considered as notional; not only does each test poll have a low number of respondents, but the results may not be representative of the general village population.

Female respondents were excluded in 7 districts due to cultural sensitivities, and only 10 females were included in the Bamyan test poll. Females may have statistically significant differences than men with regards to their WTP bids.

Revealed preference experimental designs are unavailable as validation. Revealed preference is an economic term that describes how consumers express their valuations of different objects when they make purchasing decisions. E.g., if a customer buys a soda for \$2, it must be worth at least \$2 and possibly more – or else he would not have made the purchase. Development projects are not traded in the marketplace, so researchers cannot usually observe how people value them through an experiment that measures revealed preference.

The study director was not co-located with HTS or the field research team from Glevum. Communication was primarily through email and phone conversations. This presented no opportunity for follow-up questions on interesting results; once results were received by the study director, the fieldwork had already completed.

5.8 Verification Activities

SPED's design implements the full range of relevant best practices and recommendations for the conduct of CVM research as consolidated in Whittington (2010) and Arrow et al. (1993).

- Interviews were conducted in person using personnel native to the provinces in which they worked.
- Surveys utilize a Y/N referendum question format that provides respondents with a specific cost figure.
- Respondents are provided with narratives that provide details on what the project will entail such as benefits, costs, timelines, sustainment, etc.
- Several checks on understanding were included in the research design such as focus groups, test polls, diagnostic questions, and two-way translation of the questionnaire.
- The interview team received extensive training and were observed during test interviews in the field before they could begin work on SPED. Additionally, high levels of supervision and survey-back checking were implemented. See sections 5.2 and 5.6 for more detail.
- SPED also included a 'cheap talk' script to improve bid accuracy and integrity. See section 5.6 for more detail.

As mentioned in the preceding section, true validation is not possible with this survey due to the hypothetical nature of the research.

6 RESULTS

6.1 Interviews

Informants were instrumental in the initial selection of project types for each village. Informant feedback was used to create details of the community's need and how the project would address that need.

CERP data on completed projects in Afghanistan were then referenced to fill in basic project details. Rough order of magnitude estimates were created for project costs, timelines, maintenance, and longevity.

Scenarios allowed respondents to visualize the project and understand how it will impact their lives. Example:

"The village of Dehjiano Kalay does not have enough drinkable water. The proposed project will install wells, and each well will be equipped with a hand-pump. The village council will hire a contractor to dig the wells and install the hand pumps. The contractor will provide training to the villagers on how to maintain the wells and the pump hardware.

This project will require funding, machinery, materials, and general labor. The cost of the project will be 400,000 Afghani, and the project should take four weeks to complete. Several villagers must participate in training sessions to learn how to maintain the pump hardware and test the well water to be sure that it is safe to drink. All of the people in Dehjiano Kalay will benefit. The wells should last between 10 and 50 years depending on the supply of water underground. The people of the village will be responsible for replacing the hand pump hardware and the concrete over the wells to prevent collapse and debris from clogging the wells. The wells will supply villagers with potable water."

Full-text versions of all scenarios used are available in appendix H.

6.2 Focus Groups

The discussions varied widely between each of the eight focus groups, although several clear trends did emerge. This section will discuss those findings in detail, as well as provide quotes from focus group respondents. Respondents will be identified only by the province in which they reside. Full reports from the focus groups are available upon request.

Respondents generally believed that villagers would be unwilling to make cash contributions. However, some responses left the door open to higher cash contributions. Certain respondents expressed that the village could scrape together resources to contribute if necessary for the project to be implemented. Discussions on this topic focus on several issues:

- *"The Americans should give us money. What is the PRT [Provincial Reconstruction Team] for? Give me the money, I will arrange everything."* –Paktika

Some Afghans feel a sense of entitlement. This could be a side effect of the massive influx of foreign aid to Afghanistan over the past decade. A proportion of the population now expects the government, NGOs, or NATO to fully fund development projects.

- *"People can't provide help ... nothing can be done with 50 to 100 Afghani."* – Wardak.

Rampant poverty and cash shortages may limit respondents' capacity to contribute. A significant proportion of the population will either have little or no cash income. Additionally, respondents felt that small contributions would not be worthwhile. This

perspective ignores the potential for trivial individual WTP bids to aggregate into large community-level WTP. It also represented a potential challenge to the survey – the test polls were examined closely to see if respondents tended to eschew smaller amounts in favor of a zero WTP bid.

- *“Most people don’t care about public work; they are busy with their private work and benefits.” – Helmand.*

Some respondents demonstrated an inability to consider the long-run impact of their decisions. This subset instead focused on their short-term day-to-day existence, and was more concerned about the up-front costs of a project instead of the eventual benefit it would provide. Development problems were not viewed as investments in their future.

- *“Financial help should be provided by the NGOs and the people should provide workers.” – Kunduz*

Villagers generally felt that they should provide labor while the government and NGOs should provide technical expertise and materials. This is likely due to local cash constraints, but could also be explained by a sense of entitlement.

- *“People have an interest and they will help without being forced.” – Kunduz*

More contributions are expected when villagers are united in support of the project. Respondents also felt that villagers would be more likely to contribute towards sustainment if they supported the project initially. This intuitively makes sense; communities divided in their development priorities would be expected to contribute less than those that are united. However, these divided communities raise two threats to the internal validity of a CVM study. First, their presence increases the risk of protest bids as respondents may attempt to influence the project selection process. Second, it increases the potential for externalities.

An externality is an economic term denoting a side effect, positive or negative, that imposes a cost or benefit to others and is not accounted for in the project’s cost estimates. For example, one team of female soldiers discovered that women were sabotaging a newly-built well that the U.S. military had drilled for an Afghan village (Flynn et al., 2010). While the well provided the local village with a safe and reliable source of potable water, it also inflicted an externality on the local women. The hour they typically traveled to fetch water had been their only time to relax and escape the strict rule of their fathers and husbands.

It is outside the traditional scope of CVM to identify these externalities. While the qualitative results from focus groups and cognitive interviews can sometimes uncover them, they are not a substitute for expertise on local conditions and culture.

Respondents consistently identified three factors as critical to project success:

- *“If the Taliban help, the project can be implemented.” – Wardak*

Security received frequent mention. The presence of criminals and/or Taliban elements was seen as roadblocks to economic development. Some respondents believed that the project could not succeed without Taliban consent or the Taliban may use the project to extract bribes.

- Respondents were also considered about availability of materials. If the project would outstrip local capacity, then they would require outside assistance to locate and purchase needed items. Popular support was also perceived as a key factor.
- Popular support was perceived as a key factor, as discussed earlier in this section.

Villagers generally felt that they should be responsible for project upkeep and maintenance. However, this sentiment varied with levels of project support. Detractors of the proposed scenario were more likely to suggest that external parties such as the government or NGOs should be responsible for maintenance.

“I know all of my villagers, there is no one who will make false promises.” – Paktika

Respondents were highly confident that WTP bids would be accurate and people would honor their commitments. This is likely a result of the small community size and the threat of dishonor to the family if a promise is broken.

“I don’t think that people will give money because they were not happy in the projects that were implemented by the elders before.” – Wardak

Experiences with past projects were expected to influence future contributions. Villages that had positive outcomes were more willing to contribute versus villages where projects had failed or had unintended negative consequences.

“In the [National Solidarity Program] projects, the elders stole a lot of money from us. We have to choose honest people who do not steal from us.” – Wardak

Groups were split on who should maintain responsibility for project oversight.

Recommendations included NGOs, elders, government officials, village shuras, and others.

Focus groups were able to identify issues that may arise within their communities as a result of the project, such as land loss, security threats, corruption, and inequitable distribution of benefits. Afghans were generally unable to perceive potential negative externalities that would occur outside of their community.

6.3 Survey

6.3.1 Overview:

Contrary to the focus groups, Afghans were willing to contribute cash and other resources. Average cash WTP was 484 Afghani (~\$10.10 USD). The average respondent also had a positive WTP for 2.61 of the 5 payment options. Afghans were able to understand the survey and expressed high levels of confidence in their answer – 50-59% are “very confident” in their WTP cash and labor bids. Afghans were experienced with and understood the concept of cash even if their income was primarily through in-kind exchanges or bartering. The follow-up interviews and diagnostic questions also found evidence of logical reasoning behind the bid amounts.

6.3.2 Bid Responses:

Figures 8 and 9 show the distribution of bid responses for labor and cash WTP. This distribution behaves as expected in contingent valuation, closely resembling dichotomous choice probability distributions as described in (Kerr, 2000). The primary difference in the SPED distribution is the

low number of zero bids – due less to unusual support for the projects and more likely an artifact of offering extremely low entry bids for labor and cash.

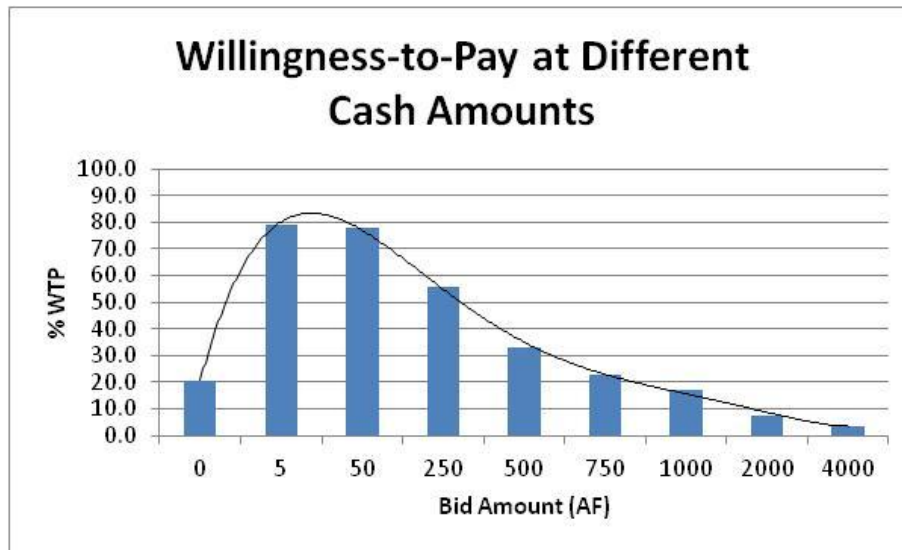


Figure 8 - Distribution of Cash WTP Bids

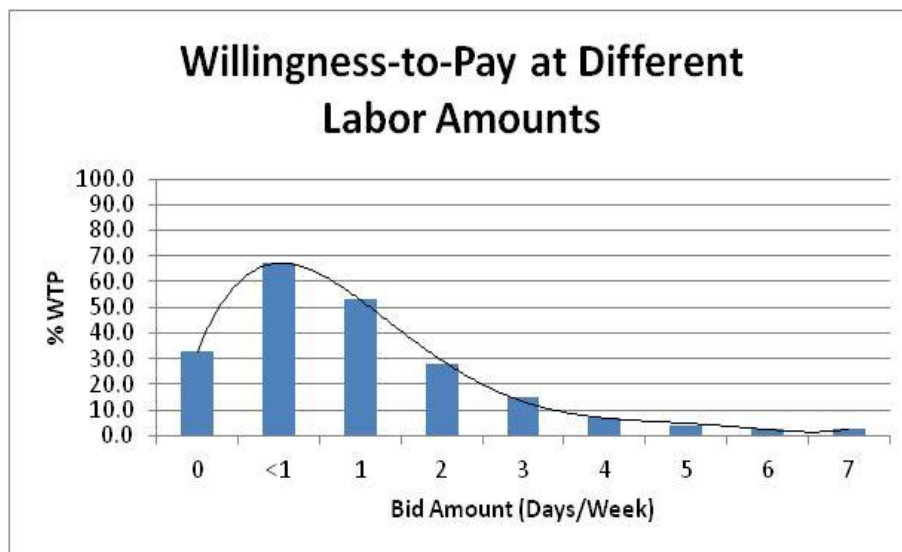


Figure 9 - Distribution of Labor WTP Bids

Figure 10 displays the percentage of respondent that were willing to make positive WTP bids, by contribution type. Cash was the most common contribution followed by labor. Land was the least common contribution.

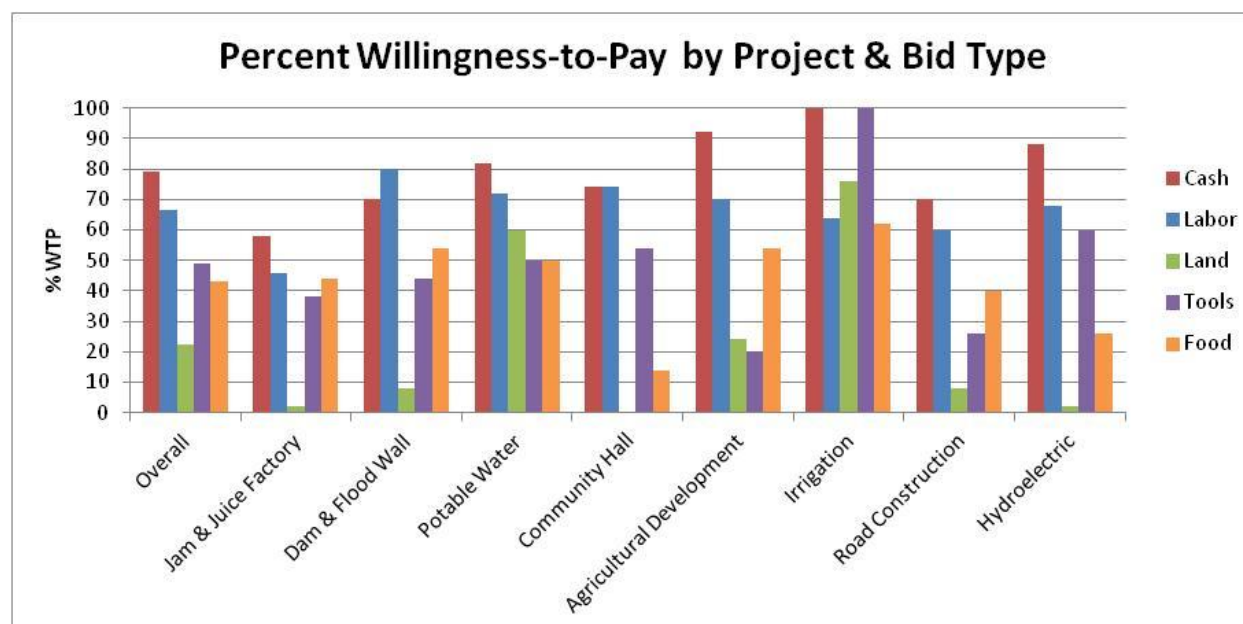


Figure 10 - Percent WTP by Project & Bid Type

There appears to be a hierarchy of contributions. Cash is the most easily interpretable; higher levels of cash contribution are demonstrative of higher levels of support for the project. The other categories are given for different reasons. Labor, tools, and food could be seen as inferior – respondents may donate those when they have lukewarm support for the project. Alternatively, the respondent may strongly support the project and donates these items in addition to cash or in place of cash due to poverty. Land is also difficult to interpret; higher contributions may be demonstrative of support for the project, but respondents gave myriad types of reasons for why they did not want to donate land. These responses included not owning land, the land not being near the project site, and that land could not be sold to support the project due to the lack of a strong market.

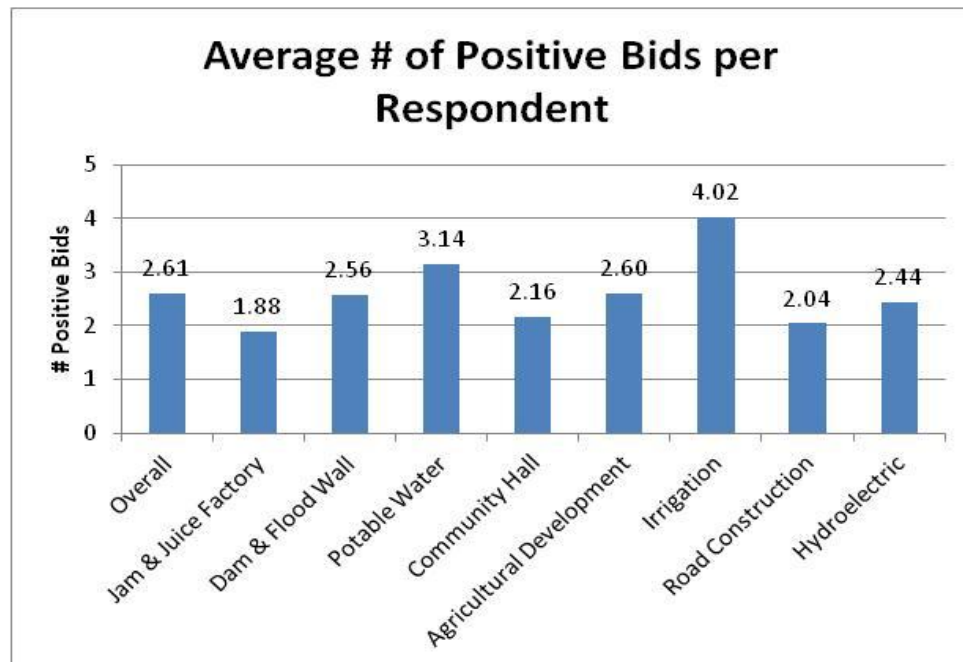


Figure 11 - Average Number of Positive Bids per Respondent

Figure 11 shows how many types of contributions the average respondent was willing to make by type of project. The irrigation, potable water, and agricultural development projects had the highest average number of positive bids.

6.3.3 Reasons for Contributions:

The tables in Figure 12 summarize the answers given in the follow-up diagnostic interviews. These 40 interviews probed the reasoning behind the respondents' bid amounts.

However, some issues affected a small minority of bids. Some bidders bid according to what they thought would be expected of them by their religion or elders, and not due to their own unique preferences. Others felt entitled, and while they may have received benefit from the proposed project they were unwilling to contribute. Cultural restrictions prevented women from contributing even if they thought the project was worthwhile. Lastly, one respondent did not accept the 'contingent' part of the valuation, and was unwilling to contribute larger amounts because he did not think the project would be implemented as described.

The reasons given demonstrate that the respondents understood the scenarios and the survey questions. A practitioner conducting a full CVM survey should consult the issues identified above and adjust the survey design to minimize the influence of these factors.

Thinking of the amount of money ... can you please explain why you chose that amount?		Why did you say you would not be willing to contribute [tools, land, food] to the project?		Thinking of the amount of days of work per week ... can you explain why you chose that amount of work?	
Lack of resources	9	Does not want project/Lack of in	9	Unavailable/Busy	11
Economic reasons	7	Does not own land	5	Does not want/Lack of interest	7
Unnecessary	6	Land is far away	2	Labor must be paid	4
Maximum I can afford	6	Refused	2	Will pay someone to work	2
Village needs project	5	Gender restrictions	2	Will send relatives	2
Unemployed/Student	5	Small/No harvest	2	Gender restrictions	2
Prefers other projects	4	Does not trust government	1	Prefers to give cash	2
Lack of interest	4	Project doesn't need land	1	Illness/Disability	2
Government/NGO should pay	3	Unavailable/Busy	1	Lack of cash resources	1
Religious requirement	2	Does not own tools	1	Amount seems sufficient	1
Project importance	2	Lack of storage space	1	Unemployed	1
Corruption	2	Security risk	1	Fully supports project	1
Amount everyone can afford	2			Encourage others to participate	1
Security issues	1			Refused	1
Pays what elders require	1			Does not benefit all	1
Doubts project will be executed	1				

Figure 12 - Answers to WTP Diagnostic Questions

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7 ANALYSIS

7.1 Calculation of Social Return on Investment

Figure 13 contains a table of community-level WTP calculations. The table also includes a calculation of the project's social return on investment (ROI). The ROI is defined here as the public benefit of the project as a percentage of the project's costs. For this exercise, it is assumed that the survey results can be generalized to the entire village.

Project Type	Avg. Cash WTP	# Families	Labor Rate	Project Length	Total Cash	Total Labor	Total WTP	Project Cost	ROI	ROI Cash Only
Jam & Juice Factory	317.1	150	310.30	32.50	47565	1331173	1378738	11000000	12.53%	0.43%
Dam & Flood Wall	209.10	122	160.70	15.17	25510.2	448990	474501	4000000	11.86%	0.64%
Potable Water	286.20	NA	293.16	4.00	NA	NA	NA	400000	NA	NA
Community Hall	356	359	212.43	15.17	127804	1202914	1330718	500000	266.14%	25.56%
Ag. Development	896	354	267.45	19.50	317184	2640049	2957233	15000000	19.71%	2.11%
Irrigation	927	270	298.91	10.83	250290	1565034	1815324	750000	242.04%	33.37%
Road Construction	238	200	446.36	8.00	47600	657047	704647	1000000	70.46%	4.76%
Hydroelectric	645.20	150	187.50	30.33	96780	853125	949905	3000000	31.66%	3.23%
Overall	484.33	229.29	272.10	16.94	130390	1242619	1373009	4456250	93.49%	10.01%

Figure 13 – Community-Level WTP Calculations

Total cash WTP was calculated by multiplying the village's average cash WTP by the number of families that would be served by the project (here, the entire village).

Total labor WTP was calculated by multiplying the average labor WTP by the daily labor/wage rate, project length, and the number of families served. Afghanistan's government does not calculate an official labor rate. Provincial-level estimates of the 2011 labor rate were obtained by the Asia Foundation (asiafoundation.org) and used in this analysis.

Figure 14 displays the total cash and labor WTP by project type. The value of labor contributions dominates that of cash contributions; labor accounts for 90.5% of total WTP. This was expected a priori due to the cash-constrained nature of rural Afghanistan. The agricultural development, irrigation, and factory projects achieved the highest total WTP.

Figure 15 displays the ROI for each project – total WTP as a percentage of project cost. Agricultural development had the highest WTP, but falls due to the enormous cost. The community hall and irrigation projects had the highest ROI, with the road construction project a distant third.

This information allows decision makers to observe the costs and benefits when deciding what projects should be supported. However, the decision maker must look at both WTP and ROI. Project sustainability is a challenge in Afghanistan due to limited resources; projects that do not have strong public support will quickly fall into disrepair and disuse. A decision maker using CVM results should not only look at which projects get the 'best bang for the buck,' but also which are likely to be sustained by the community after completion.

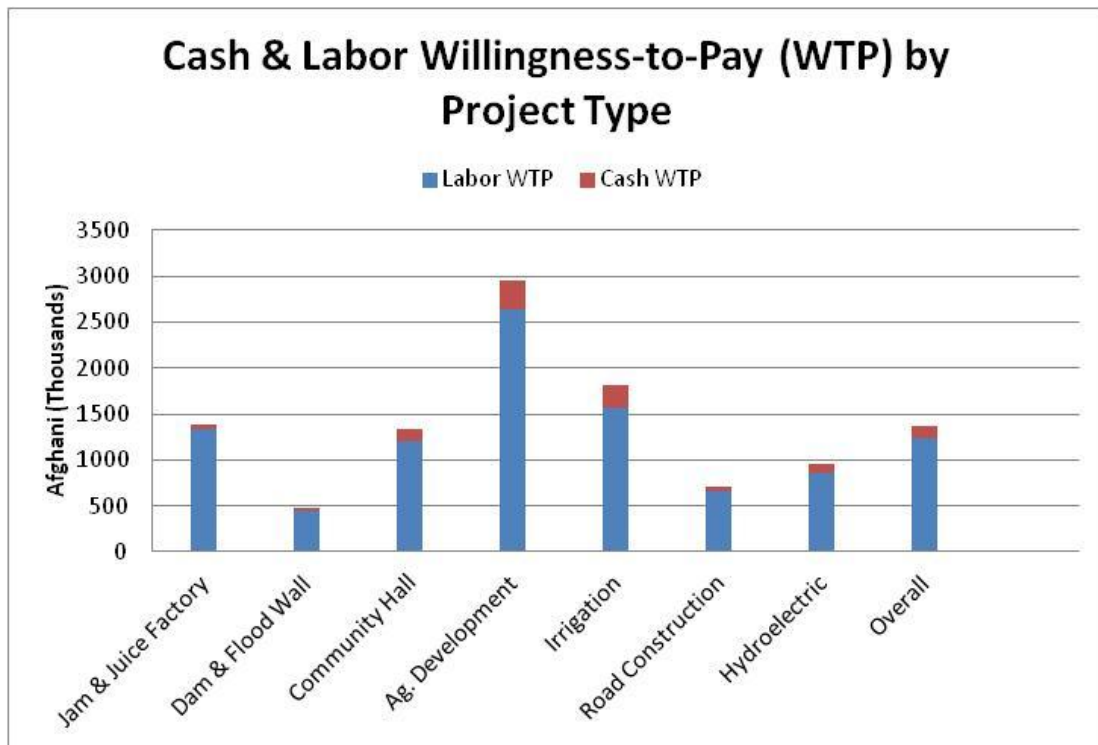


Figure 14 - Cash and Labor WTP by Project Type

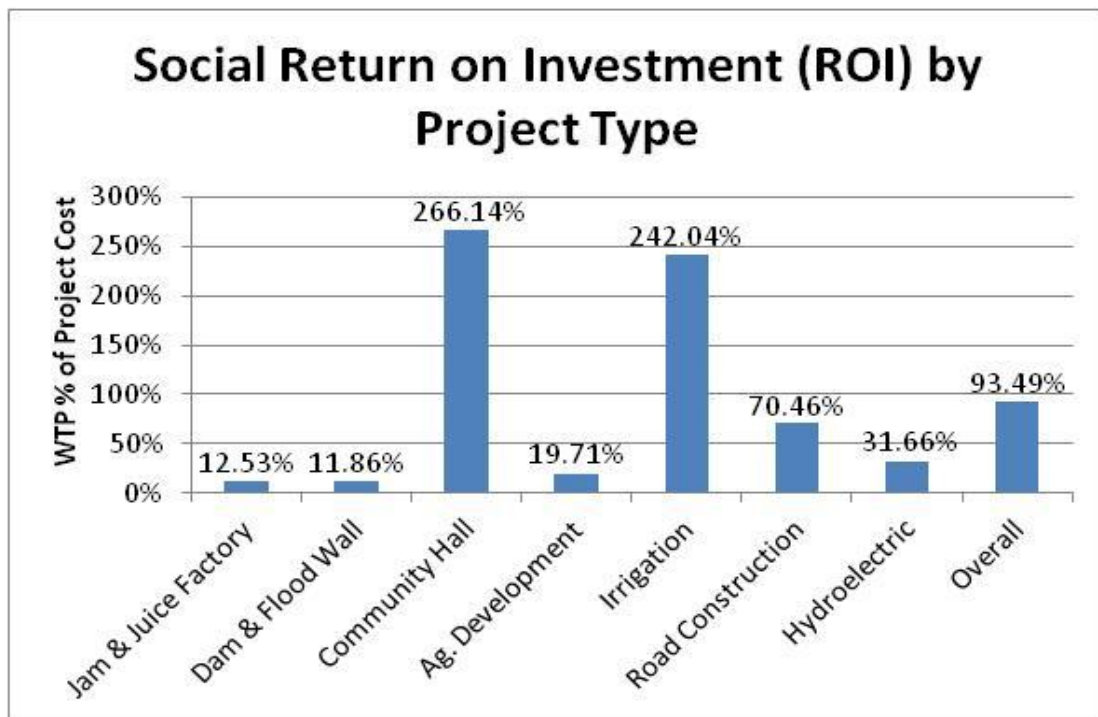


Figure 15 - Social Return on Investment by Project Type

7.2 Factors Impacting WTP

Respondents were queried regarding their perceptions of general life satisfaction, security situation, availability of economic opportunities, corruption, and other items. Tests of correlation for these responses and cash WTP were conducted, and the results are discussed in this section.

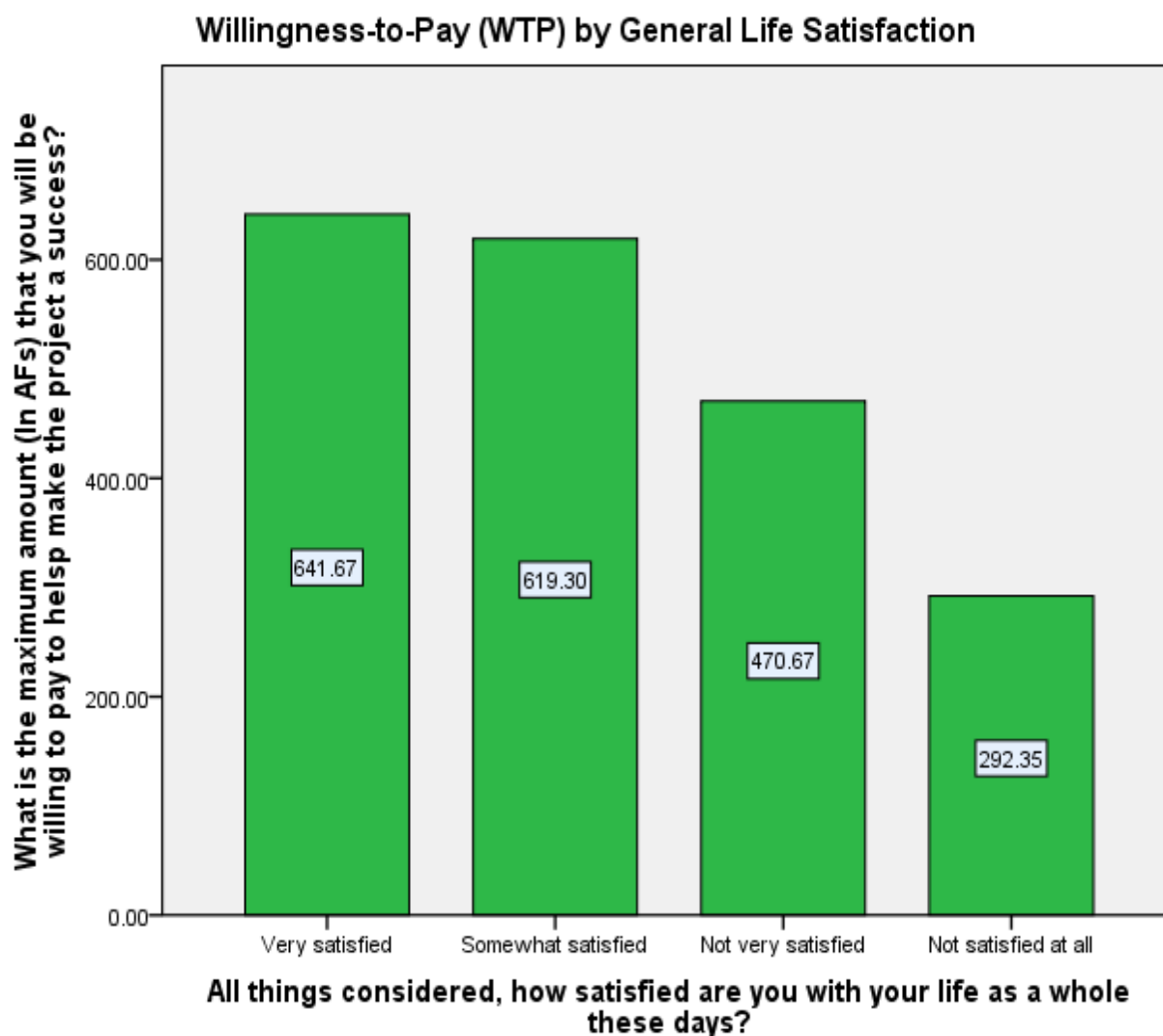


Figure 16 - WTP by General Life Satisfaction

The responses to perception questions were ordinal in nature. The Kruskal-Wallis test is an analysis of variance by ranks and was used here.

Figure 16 shows the average WTP by general life satisfaction. Respondents who expressed higher levels of satisfaction had higher WTP, and these differences were statistically significant at the .05 level.

Figure 17 shows the average WTP by perception of the local security situation. Respondents who expressed better perceptions of security had higher WTP, and these differences were statistically significant at the .05 level.

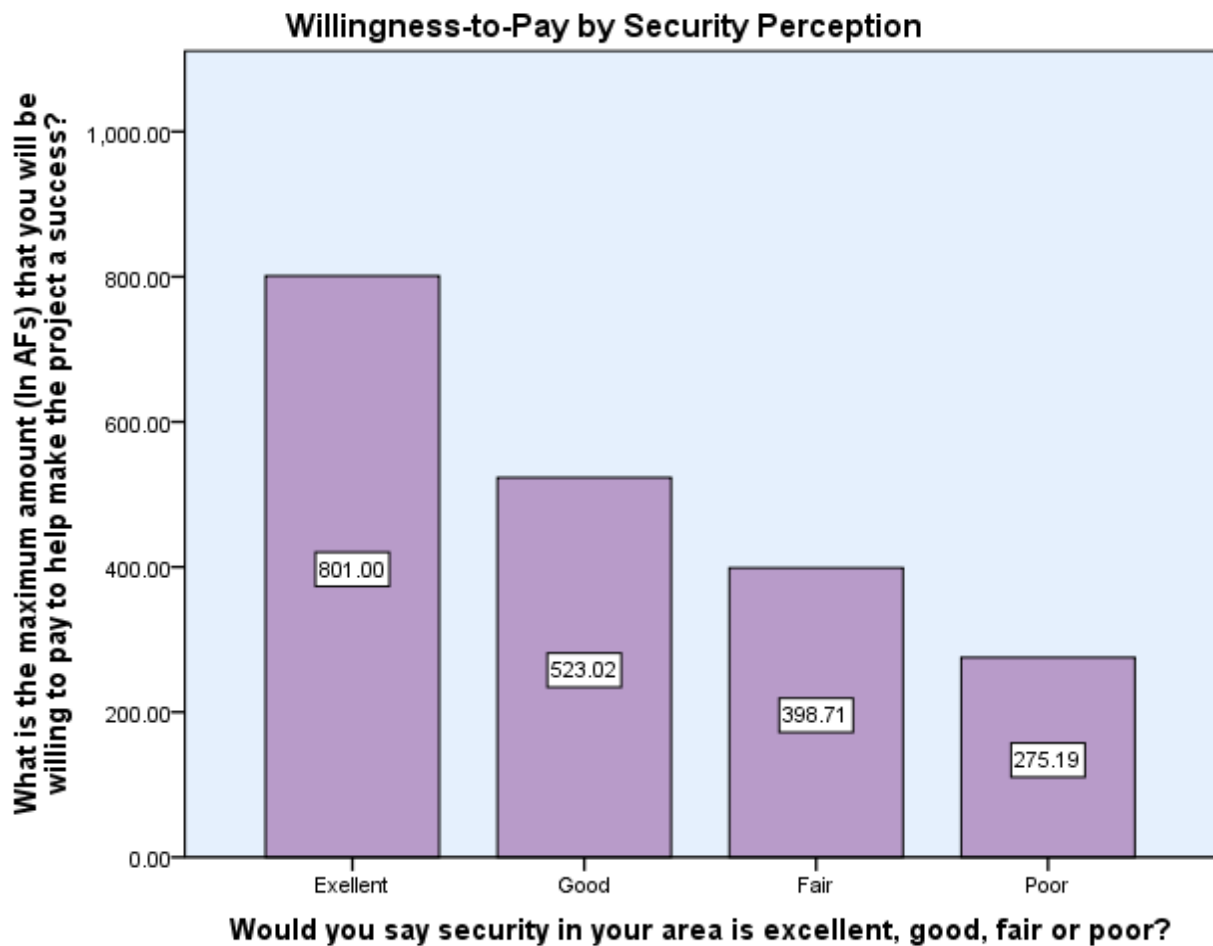


Figure 17 - WTP by General Life Satisfaction

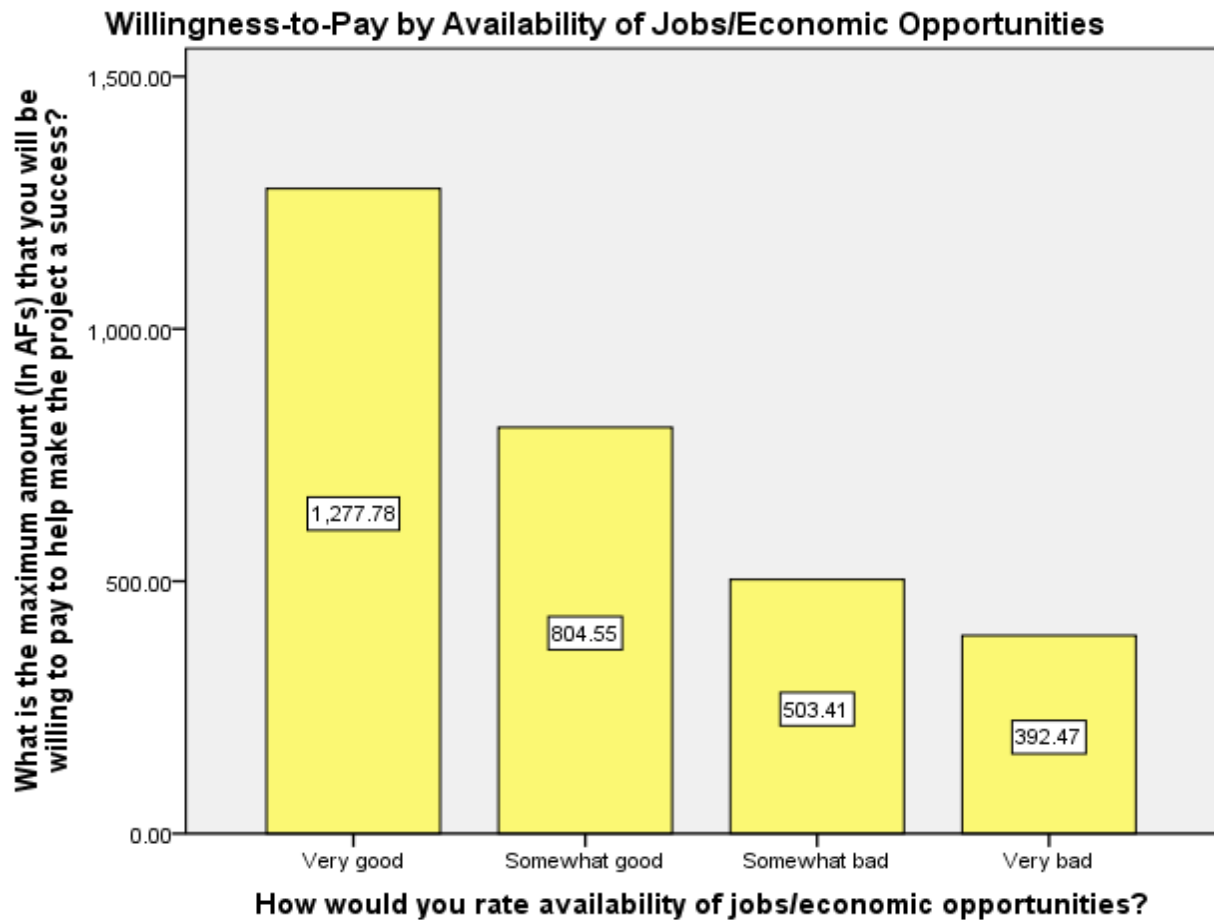


Figure 18 - WTP by Availability of Economic Opportunities

Figure 18 shows the average WTP by perception of the availability of jobs and economic opportunities. Respondents who expressed better perceptions had higher WTP, and these differences were statistically significant at the .05 level.

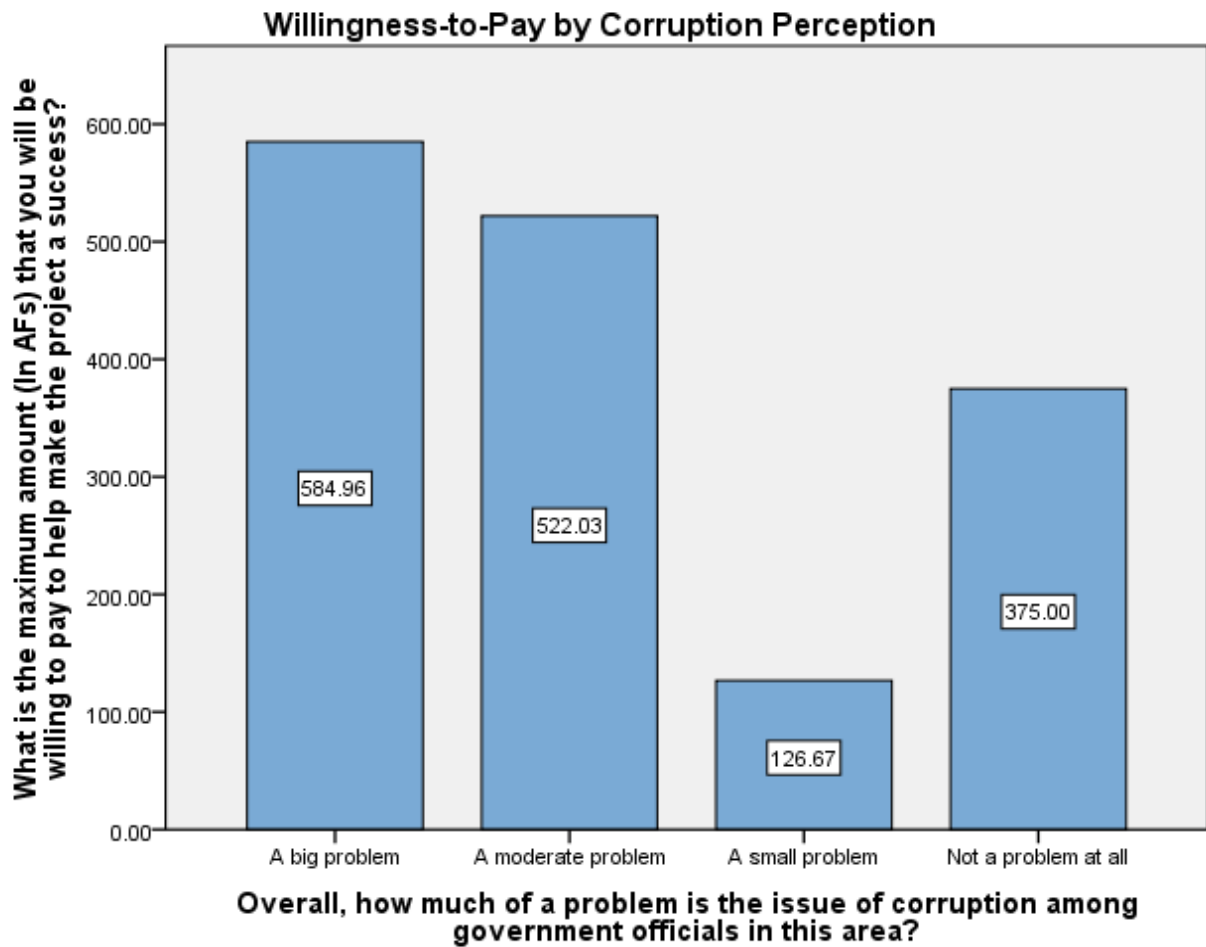


Figure 19 - WTP by Corruption Perception

Figure 19 shows the average WTP by perception of corruption amongst local government officials. Answers to this question did not come up as statistically significant.

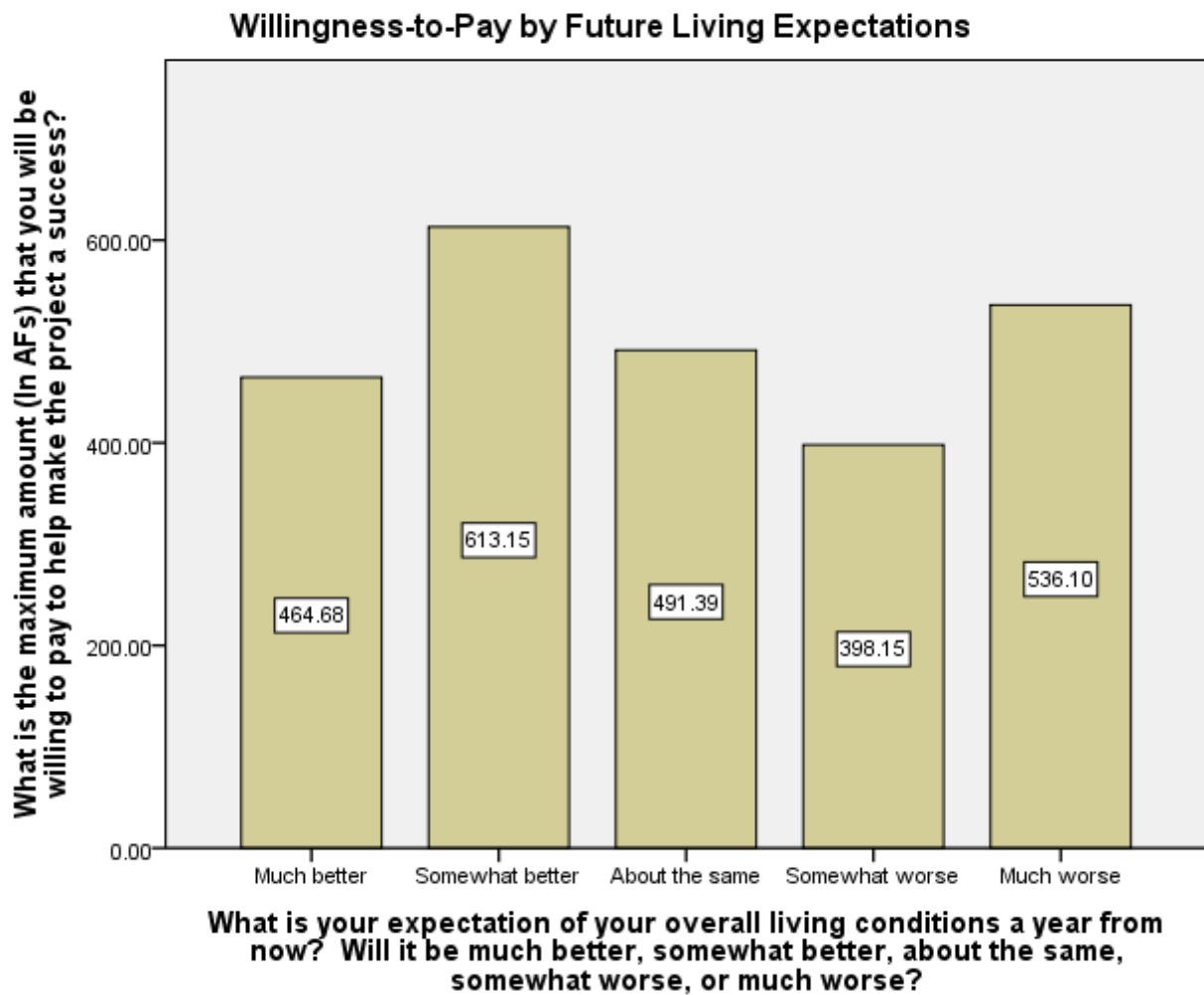


Figure 20 - WTP by Future Living Expectations

Figure 20 shows the average WTP by perception of future living expectations. Respondents who expressed better perceptions had higher WTP, and these differences were statistically significant at the .05 level. However, while the categories were significant they do not show any clear trend. This is investigated further in the next section.

7.3 Regression Results

What is the maximum amount (In AFs) that you will be willing to pay to help make the project a success?				
Variable	Including Income (n=175)		Excluding Income (n=389)	
	Correlation	Significance (2-tailed)	Correlation	Significance (2-tailed)
SES Level	-0.248	0.001	-.125	.013
Education Level	0.290	.000	.241	.000
General Satisfaction	-.176	.019	-.111	.028
Security Perceptions	-.232	.002	-.170	.001
Economic Perceptions	-.172	.022	-.154	.002
Income	.353	.000	NA	NA
Religious Affiliation	.221	.003	NS	NS
Ethnicity	-.150	.046	NS	NS
Marital Status	.150	.046	NS	NS

Figure 21 - Regression of Cash WTP Bids

A partial correlation analysis was conducted that regressed the demographic and perception variables against cash WTP, controlling for project type (figure 21). These estimates are generally reported in academic CVM studies so that scholars can observe the factors impacting WTP.

The procedure was run with and without income included as a dependent variable. This is due to the fact that income is traditionally found to be the most important determinant in CVM studies, but more than half of the survey respondents received incomes through in-kind exchanges or Pakistani rupees. Excluding income is risky because it is often correlated with other factors and could confound the analysis.

Nine different factors were found to be significantly related to cash WTP at the .05 level.

- Socio-economic status (SES) level was a five-point rating of the quality of housing and infrastructure at the respondent's dwelling. This rating was made by the interviewer based upon pre-set criteria. This matches expectations – as measures of wealth increase, WTP can be expected to increase as well.
- Perceptions of security.
- General life satisfaction.
- The availability of economic opportunities. Respondents were less willing to invest in an uncertain future.
- Education level was a scale variable measuring the respondent's number of years of formal education.
- Monthly income was a scale variable estimated by the respondent.
- Religious affiliation was a binary variable for Shia & Sunni. It was not possible to probe further into these differences, but possible explanations could include differences in

popular support for NATO, government of Afghanistan, or development in general. Alternatively, the regression could be picking up some omitted variable that is well correlated with religion.

- Marital status was a categorical variable for unmarried, married, divorced, and widowed. Married respondents were more willing to contribute to the project
- Ethnicity. Like religion, there are several competing explanations for these differences that could not be investigated further in this study.

Perceptions of future living expectations, employment status, household size, age, perceptions of corruption, and household head status were not found to be significant. Future living expectations was statistically significant during simple correlation analysis, but lost significance with the inclusion of other factors.

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8 CONCLUSION

Afghans were able to comprehend and provide rational answers to the CVM questionnaire. When asked, they expressed high levels of confidence in their answers and their WTP bids followed expected patterns. The diagnostic interviews uncovered logical reasoning behind their survey answers, and factor coefficients are in the expected direction.

It was unclear a priori if full-scale CVM surveys could be conducted in Afghanistan. Not only is it one of the most underdeveloped, cash-constrained societies on the planet, but it is also an active warzone. The success of the SPED study demonstrates that researchers can expect that even rural, conflict-ridden environments will understand and have experience with cash and making valuations. The increased proliferation of technologies such as mobile phones, satellite, electricity, and others to even the poorest corners of the world has perhaps aided in this understanding.

The CVM technique was able to elucidate some village-level externalities through the focus groups and cognitive interviews. However, regional and military expertise is still required before the results can be utilized. Examples abound where local commanders did not properly survey the political landscape and embarked on ill-fated projects that created jealousy and strife. Knowledge of the local area cannot fully be replaced by any survey instrument.

The *broken window theory* seems to apply. At risk of oversimplification, this theory states that a feedback loop exists where residents of poor environments will not invest in nor maintain their communities and so they degrade further, while the opposite exists in positive environments (Kelling & Wilson, 1982). In the SPED survey, respondents who perceived a better local environment were more willing to contribute to the proposed development projects.

Local buy-in and involvement in projects could be secured and measured through more than labor; a variety of contributions including cash can be brought to bear. If the results of this survey can be extrapolated, most Afghans would contribute in some manner if they view the project as worthwhile. Labor provides the greatest potential opportunity for contributions.

Smaller projects may be preferable – the less expensive projects generally had a higher ROI. This may be due to local constraints; larger projects may outstrip domestic capacity to contribute.

Future CVM studies could test a *menu-of-options* approach. This approach would ask respondents' WTP regarding several candidate projects. A commander could then use the results to compare across a range of options, as opposed to evaluated singular options like in SPED. Experimentation with larger sample sizes and additional demographic information could also expand the knowledge of factors impacting WTP. Improved income data, localized wage rates, and methods to better include women would improve the efficacy of a CVM survey.

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APPENDIX A PROJECT CONTRIBUTORS

A-1 PROJECT TEAM

Project Director: Kevin Griffith.

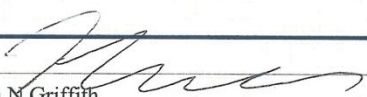
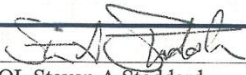
A-2 PRODUCT REVIEWERS

Mr. Russell Pritchard, Quality Assurance

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APPENDIX B REQUEST FOR ANALYTICAL SUPPORT

REQUEST FOR ANALYTICAL SUPPORT

Performing Division: OCA		Account Number: 2011065	FY: 2011
Acronym: SPED		Start Date: 26-May-11	Est Compl Date: 31-Dec-11
Title: Stated Preference Economic Development Model			
Category: Analysis of Insurgencies/Counterinsurgencies			Method: In-house & C
Sponsor (i.e., DCS-G3) Name: CAA		Office Symbol:	
Phone:	E-Mail:	POC:	
Resource Estimates:	a. Estimated PSM: 9	b. Estimated Funds: \$250,000.00	
Models to be Used:		Product: Analytical Tool	
Description/Abstract: This project develop a methodology and collect primary data including survey information from Afghanistan regarding a range of development projects. The results and methods can be included in assessment practices to allow decision-makers to compare the true net benefits of non-kinetic actions in counterinsurgency.			
Study Director/POC Signature: 		Phone: 703-806-6636	
Study Director/POC: Mr. Kevin N Griffith			
PART 2			
Background/Statement of Problem: Stated Preference/Contingent Valuation is a survey-based technique for valuing non-market resources. It is commonly used by U.S. government agencies in cost-benefit analyses of water and environmental projects. It involves primary data collection of respondent's willingness to pay (or accept) for certain projects and demographic information. This sample data is extrapolated to the larger population to determine society's net benefit (or cost) for a given project. The demographic information allows the results to be further extrapolated to other unsurveyed areas or projects.			
Scope: The project first entails a detailed literature review regarding cost-benefit analyses and specific cultural issues/concerns. A survey instrument will also need to be designed, submitted to focus groups, pre-tested, and then fielded. The project will determine the net benefits of different classes of development projects, and develop a tool that would allow this data to be extrapolated to other areas.			
Issues:			
Milestones:			
Signatures	CAA Division Chief Signature: 		Date: June 11
	CAA Division Chief Name: COL Steven A Stoddard		
	Sponsor Concurrence Signature:		Date
	Sponsor Name (COL/DA Div Chief/GO/SES):		

Print Date: 09-Jun-11

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APPENDIX C ACRONYMS

AAR – After Action Review

AFRICOM – United States Africa Command

ALLIS – Army Lessons Learned Information System

AOI – Area of Interest

CA – Civil Affairs

CA BN – Civil Affairs Battalion

CAA – Center for Army Analysis

CADB – Commander’s Action Decision Brief

CIDNE – Combined Information Data Network Exchange

CIM – Civil Information Management

CJOA – Combined Joint Operating Area

CJSOTF- A – Combined Joint Special Operations Task Force – Afghanistan

CLDJ – Camp Lemonnier, Djibouti

CMO – Civil Military Operations

COP – Common Operation Picture

CPOF – Command Post of the Future

CUB – Commander’s Update Brief

C&S – Command & Staff Brief

DCGS – Distributed Common Ground System

DENTCAP – Dental Civil Action Program

DRC – Democratic Republic of Congo

DVIDS – Defense Video & Imagery Distribution System

FX – CJTF-HOA J5 Effects/Assessments

GCCS – Global Command & Control System

HOA – Horn of Africa

INDURE – International Distributed Unified Reporting Environment

JEWG – Joint Engagements Working Group

JLLIS – Joint Lessons Learned Information System

JSOTF-P – Joint Special Operations Task Force – Philippines

KDF – Kenya Defense Forces

KLE – Key Leader Engagement

CAA-2011065

MAT – Mission Activity Tracker

MCAU – Maritime Civil Affairs Unit

MEDCAP – Medical Civil Action Program

NMCB – Naval Mobile Construction Battalion

OHASIS – Overseas Humanitarian Assistance Shared Information System

ORSA – Operations Research/Systems Analyst

PWG – Planning Working Group

RIP/TOA – Relief in Place/Transfer of Authority

TIGR – Tactical Ground Reporting

TSCMIS – Theater Security Cooperation Management Information System

USCENTCOM – United States Central Command

USG – United States Government

USMC – United States Marine Corps

USN – United States Navy

VETCAP – Veterinary Civil Action Program

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APPENDIX E FOCUS GROUP DISCUSSION GUIDE

Focus Group Discussion Guide

Participants:

1-: What development assistance does this village need? **(Moderator: development assistance is anything that could improve the education, health, and income of people or the infrastructure of your area. These things do not include problems like corruption or security).**

2-: You mentioned [list the types of development mentioned by the group]. Which of these development needs should be addressed first?

a-: Why is this the most important need to address first?

b-: *If there are several equally important projects that the village needs, ask the participants to answer the following question for each need separately:* How will addressing this need remedy the biggest problem that the village faces?

3-: You mentioned [list the types of development mentioned by the group]. How are each of these needs currently met? **(For example, if the village needs drinking water, how do the villagers currently get drinking water? Or if the village needs electricity, what do people currently use electricity for – anything? And, what do they use instead of electricity, e.g., to light their homes?).**

4-: Have you heard of any development projects in your area?

a-: What type of projects were those?

B-: Who provided the money for the project?

c-: Who provided the labor for the project?

d-: Who provided the materials and supplies for the project?

[Note to Moderator: The participants must understand that the scenario is pretend and there are no real plans to execute this project in their area. The participants should understand the point of the discussion is just to get their opinions about it.]

Moderator Read: Now I am going to tell you about a development project. This project is not real. It is just an idea. However, the development project that I am going to tell you about is similar to projects that have been implemented in this area, and maybe even in this village.

(FOCUS GROUP MODERATOR: READ THE SCENARIO TO THE GROUP PARTICIPANTS)

Now I would like to ask you some questions about the project that I just told you about ...

- 5-: Have there been projects in your village like the one that I just described? If there have not been any projects in this village like the project that I described, maybe there has been a project like it in a village nearby?
- 6-: Does this village need the project that I described?
Probe: if people say yes, ask: Why does the village need this project? What problem will this project solve?
Probe: if people say no, ask: Why does this village not need this project?
- 7-: [If the people say that the village needs the project that is described in the scenario, ASK:] how do the people currently fulfill their need for [FILL IN the service or good that the project will provide]?
- 8-: How easy or difficult would it be to implement this project in this village?
Probe: if people say it will be easy, ask them why they think that it will be easy to implement this project in the village
Probe: if people say it will be difficult, ask them why they think that it will be difficult to implement the project in the village

Now I am going to ask you some questions about how this village might implement the development project that I just described to you

First, let's discuss how the community would plan and organize the project...

- 9-: Do the people of the village need to get permission from someone in order to implement the project?
Who do they need to secure permission from?
Would it be easy or difficult to secure this permission?
- 10-: Who would be in charge of the project? Would it be one person or a group of people?
Probe: [If one person would be in charge] why would that person be in charge? Why not someone else?
Probe: [If a group of people would be in charge] why will those people be in charge?
Why not other people?
.
- 11-: How would the village get the resources that are needed for the project?

How would the village get the money needed to pay for the project?
How would the village get the supplies and materials needed for the project?
How would the village get the technical advice and assistance needed for the project?
Who would provide the labor needed for the project? Why them? Why not other people?

12:- Would people in the village be willing to contribute money, labor or goods to the project?
 If yes, why?
 If no, why not?

13:- What type of contribution would villagers be most willing to make: a contribution of money, a contribution of labor, or a contribution of goods and materials?

[If Participants say money]: Probe: why would most people want to make their contribution by paying money?

[If Participants say Labor]: Probe: why would most people want to make their contribution by providing labor?

[If participants say goods/materials]: Probe: Why would most people want to make their contribution by providing goods or materials?

14:- What if people in the village were required to make a contribution to the project in order for the project that I described to be implemented? This means that the project would not be implemented if all of the people in the village did not contribute in some way to the project.

a:- How much would villagers be willing to contribute to the project? How many Afghans would they be willing to pay? [Note to Moderator – the intent is to have the participants name an amount of money they are willing to pay]

b:-If people in the village could not pay in Afghans, would people be willing to work on the project by helping to build the project? How many days of labor would they be willing to work on the project?

c:- Would people give goods or supplies as their contribution to the project? What would they give? How much would they give?

15:- Perhaps there are people in this village who have more wealth than other people. Are there individuals in the village who are able to contribute more than others? What kind of people should contribute more?

a:- Should these individuals be required to contribute more than others? If yes, how much should they be required to contribute?

We have discussed the way that people might make a contribution to the project. We've also discussed that it is important for everyone in the village to make a contribution to the project, because if the whole community does not make a contribution the project cannot be implemented.

Let us now discuss some of the rules that might be applied to the contributions to the project.

16:- How much time should villagers have to provide their contribution to the project?

Probe: should there be a deadline by which people must make their contributions to the project?

Probe: Should villagers face a fine or other penalty if they do not contribute their portion? What should this fine or other penalty be? Who will enforce this fine or penalty?

17-: Sometimes when people really need or want something, they will promise to do something but in reality they will not or cannot do what they promise. Do you think that some people in your area might say that they will pay more or provide more labor for the project than they are able to provide because they strongly want the project to be implemented? What would they say?

When we think about development projects, we think that they can only bring good things and solve problems. But it is possible that development projects can also cause problems. I would like to discuss with you now how this project I described to you might cause problems for the people of this village.

18-: Could this project cause any problems for the people of this village or with people from neighboring villages?

a-: Will the project that I described to you benefit some people in this village more than others? Who would it benefit? How would they benefit more than others? Why would these people benefit more than others?

b-: Would some people or groups in this area try to take control of the project for their own purposes?

c-: would neighbor villages be affected by the project? How would they be affected? What would happen to them?

d-: Would anyone who currently provides a service to the village no longer be needed once the project is finished? Should the people who provided the service be compensated? How should they be compensated?

We have discussed many things with regard to beginning the project that I described to you but it is also important to discuss how the people of the village will maintain the project that I described to you so that everyone can benefit from the project for a long time.

19-: Once the project is completed, how will the people of the village maintain it?

Probe: Who should be responsible for its maintenance? Why that person? Why not someone else?

Probe: Would villagers be willing to continue to contribute towards the maintenance of the project? How much would they be willing to contribute per year to maintain the project?

Probe: Would the people make this contribution by paying money, by providing labor or providing goods?

APPENDIX F FULL QUESTIONNAIRE

Contingent Valuation Method Survey

M-1. Respondent Identification Number

M-2. Region

- | | | |
|------------------|------------------|---------------------|
| 1. Central/Kabul | 4. South Western | 7. Central/Hazarjat |
| 2. Eastern | 5. Western | |
| 3. South Central | 6. Northern | |

M-3. Sampling Point/District Where the Interview Was Completed: ____ ____ ____

M-4. Geographic Code

- | | | | |
|-------------|----------|---------|-----------------|
| 1. Villages | 2. Towns | 3. City | 4. Urban Metros |
|-------------|----------|---------|-----------------|

M-5. Province

- | | | | |
|------------|----------------|---------------|--------------|
| 1. Kabul | 9. Khost | 17. Kunduz | 25. Farah |
| 2. Kapisa | 10. Ningarhar | 18. Balkh | 26. Nimroz |
| 3. Parwan | 11. Laghman | 19. Samangan | 27. Helmand |
| 4. Wardak | 12. Kunar | 20. Juzjan | 28. Kandahar |
| 5. Logar | 13. Nooristan | 21. Sar-I-Pul | 29. Zabul |
| 6. Ghazni | 14. Badakhshan | 22. Faryab | 30. Uruzghan |
| 7. Paktia | 15. Takhar | 23. Badghis | 31. Ghor |
| 8. Paktika | 16. Baghlan | 24. Herat | 32. Bamyan |
| | | | 33. Panjshir |
| | | | 34. Dehkondi |

M-6. Year of Interview: 2011

M-7. Month of Interview

- | | | | |
|-------------|----------|--------------|--------------|
| 1. January | 4. April | 7. July | 10. October |
| 2. February | 5. May | 8. August | 11. November |
| 3. March | 6. June | 9. September | 12. December |

M-8. Date of Interview: ____ ____

M-9. Day of Week of Interview

- | | | |
|-------------|--------------|-------------|
| 1. Friday | 4. Monday | 7. Thursday |
| 2. Saturday | 5. Tuesday | |
| 3. Sunday | 6. Wednesday | |

M-10. Interviewer Code: ____

M-11. Interview Completed on the ...

- | | | |
|------------------|-------------------|------------------|
| 1. First Contact | 2. Second Contact | 3. Third Contact |
|------------------|-------------------|------------------|

M-12. Supervisor Code: ____

M-13. Record Time (using 24-hour clock) Interview Began: ____: ____
(Record Time Began Starting With Q-1)

M-14. Record Time (using 24-hour clock) Interview Ended: ____: ____
(Fill in all four data positions)

M-15. Record Length of Interview in Minutes: ____

M-16. Date Formatted Field: SEP 2011

M-17. Keypuncher Code ____

M-18. Language of Interview

- | | | |
|-----------|---------|----------|
| 1. Pashto | 2. Dari | 3. Other |
|-----------|---------|----------|

M-19. Coder Code ____

M-20. District ID ____

Informed Consent

READ: "I would like to ask you some questions about your general situation and your views on development projects in your area.

We will not ask for your name and the answers you and others provide will be held in strict confidence. Also, your responses to the survey questions are strictly voluntary. This survey will take approximately 20 minutes and there will be little or no risk to you in participating. There will also be no cost to you to participate – you do not have to pay anything to be a part of this important survey. If we come to a question you do not wish to

answer, please tell me and we'll move on. If you do not want to answer any of the questions you do not have to give a reason and it will not affect your relationship with the researcher. However your answers can be very important for helping to understand the situation with economic development in your community and Afghanistan.

Do you give your consent for me to proceed?"

M-21. Informed Consent _____ (tick)

RECORD THE TIME THE ACTUAL INTERVIEW BEGUN (M-13)
AND USE A 24-HOUR CLOCK (14:24, for 2:24 pm)

SECTION 1: GENERAL SATISFACTION

Q-1. All things considered, how satisfied are you with your life as a whole these days? Would you say you are Very Satisfied, Somewhat Satisfied, Not Very Satisfied, or Not Satisfied At All?

1. Very Satisfied
2. Somewhat Satisfied
3. Not Very Satisfied
4. Not Satisfied At All

-
8. Refused (vol.)
 9. Don't Know (vol.)

Q-2. What is your expectation of your overall living conditions a year from now? Will it be much better, somewhat better, about the same, somewhat worse, or much worse?

1. Much Better
2. Somewhat Better
3. About The Same
4. Somewhat Worse
5. Much Worse

-
8. Refused (vol.)
 9. Don't Know (vol.)

SECTION 2: DEVELOPMENT NEEDS

READ: “*Development can include several things, such as Security, the Economy, Governance, Construction and Reconstruction, Social Issues and Services. With these development categories in mind, I would like to ask you some questions about local needs for development and what, in your opinion, do you think are the obstacles for achieving these developments.*”

Q-3. I would like to start by asking you about today’s conditions in the Mantaqa where you live. How would you rate the following using Very Good, Somewhat Good, Somewhat Bad, or Very Bad?

	VG	SG	SB	VB	Ref (vol.)	DK (vol.)
a. Your living conditions overall.	1	2	3	4	8	9
b. Security from crime and violence.	1	2	3	4	8	9
c. Availability of jobs/economic opportunities.	1	2	3	4	8	9
d. Roads, bridges and other infrastructure.	1	2	3	4	8	9
e. The availability of clean water.	1	2	3	4	8	9
f. The supply of electricity.	1	2	3	4	8	9
g. The availability of food.	1	2	3	4	8	9
h. The availability of medical care.	1	2	3	4	8	9
i. The local schools.	1	2	3	4	8	9
j. Your freedom of movement – the ability to go where you wish safely.	1	2	3	4	8	9
k. Security from the Taliban/AGE.	1	2	3	4	8	9
l. Your ability to afford the price of things you want and need.	1	2	3	4	8	9
m. Support for agriculture, including the availability of seed, fertilizer and farming.	1	2	3	4	8	9
n. Sanitation and waste collection	1	2	3	4	8	9

Q-4. Now, for each service I mention, please tell me how Satisfied or Unsatisfied you are with the provision of this service in your area. [INSERT SERVICE]: Would you say you are Very Satisfied, Somewhat Satisfied, Somewhat Unsatisfied, or Very Unsatisfied?

	VS	SS	SU	VU	Ref (vol.)	DK. (vol.)
a. Clean water	1	2	3	4	8	9
b. Electricity	1	2	3	4	8	9
c. Primary school for boys	1	2	3	4	8	9
d. Primary school for girls	1	2	3	4	8	9
e. Medical care	1	2	3	4	8	9
f. Cell phone service	1	2	3	4	8	9
g. Good roads and pavement	1	2	3	4	8	9
h. Affordable safe housing or shelter	1	2	3	4	8	9
i. Transportation to District center	1	2	3	4	8	9
j. Sanitation and waste collection	1	2	3	4	8	9
k. Television, radio, newspapers	1	2	3	4	8	9
l. Development projects	1	2	3	4	8	9
m. Justice and Courts	1	2	3	4	8	9

Q-5a. In your view, if the government were to fix or change just one thing in your area, what would **MOST** help your community? [INTERVIEWER: **Open End with Precodes. Do not read precodes.**]

Write First Response: _____

Q-5b. And after that, what would be the **SECOND** thing the government could fix in your area?

Write Second Response: _____

Precodes:

1. Improve roads
2. Improve irrigation for farming
3. Improve sanitation
4. Improve access to/quality of safe and healthy drinkable water
5. Build a school – improve access to/quality schools and education
6. Build a health clinic – improve access to/quality of medical care
7. Improve access to food/food security
8. Increase resources to or improve the ANA
9. Increase resources to or improve the ANP
10. Improve security (general)

11. Improve government responsiveness and effectiveness
12. Decrease corruption
13. Improve access to/effectiveness of justice and courts
14. Build or repair Mosque
15. Employment/provide jobs

97. Other (Specify) _____
98. Refused (vol.)
99. Don't Know (vol.)

Q-6. Overall, how much of a problem is the issue of corruption among government officials in this area. Would you say it is a big problem, a moderate problem, a small problem, or not a problem at all?

1. A Big Problem
2. A Moderate Problem
3. A Small Problem
4. Not A Problem At All

8. Refused (vol.)
9. Don't Know (vol.)

SECTION 3: SECURITY

READ: *"I would like to ask you a question about security and how safe or unsafe you may be feeling these days."*

Q-7. Would you say security in your area is excellent, good, fair or poor?

1. Excellent
2. Good
3. Fair
4. Poor

8. Refused (vol.)
9. Don't Know (vol.)

SECTION 4: DEVELOPMENT SCENARIOS

Interviewer, read: *"Now I would like to read a quick story to you regarding a development project in your area. Please play close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village".*

Q-8. Have you noticed a need for [PROJECT TYPE] in your area?

_____ Yes _____ No

[INSERT SCENARIO TEXT]

Q-9. Do you have any questions about the scenario above that I just read to you?

1. Yes (If yes, take a moment to answer the respondent's questions).
2. No

8. Refused (vol.)

9. Don't know (vol.)

INTERVIEWER: PAUSE FOR A MOMENT TO ALLOW THE RESPONDENT TO ASK ANY QUESTIONS ABOUT THE SCENARIO. PLEASE WRITE ANY QUESTIONS ASKED BELOW:

Q1: _____

Q2: _____

Q3: _____

INTERVIEWER, READ: *"In a recent study, a village voted on a project just like yourself. The project was hypothetical and no one really had to pay, just like you. Another village voted on the same project, but the project was real and they would have to pay money if the project is implemented. Only half as many people from the village that had to pay for the real project voted for the project compared with those who were considering a hypothetical project...like yourself. That's quite a difference, isn't it? When answering these questions, please vote and answer just exactly as you would if this were a real project being proposed, and you have to pay money or provide labor if the project goes ahead."*

Thinking again of the agriculture project I mentioned earlier, please answer the following questions about your willingness to pay to help make the project a reality:

Q-10. Would you be willing to pay the following amounts of money to help make the project a reality in your area? Before the project starts, would you be willing to pay a one-time payment of [INSERT AMOUNT] to contribute towards the cost of the project? The amount would be

paid to a local representative chosen by the community to represent the community. Please answer yes or no. *(INTERVIEWER: NOTE, the monies will be used to pay for general expenses to implement the project. They will not be used to fund salaries or pay for bribes or other improper activity. If the respondent says they do not know are not sure, please probe until the respondent provides a yes or no answer).*

	Yes	No	Refused
a. 5 AF?	1	2	8
b. 50 AF?	1	2	8
c. 250 AF?	1	2	8
d. 500 AF?	1	2	8
e. 750 AF?	1	2	8
f. 1000 AF?	1	2	8
g. 2000 AF?	1	2	8
h. 4000 AF?	1	2	8

Q-11. What is the maximum amount (In AFs) that you will be willing to pay to help make the project a success?

Interviewer: write amount: _____

- _____
 8. Refused (vol.)
 9. Don't know (vol.)

Q-12. Thinking of your answers about the amount of money you would pay for the project, overall, how confident would you say you would actually be able to make this contribution? Are you very confident, somewhat confident or not at all confident?

1. Very confident
 2. Somewhat confident
 3. Not at all confident

 8. Refused (vol.)
 9. Don't know (vol.)

Q-13. Thinking again about the project I mentioned earlier and the fact that it will involve 4 to 5 months of construction, how many days per week of unpaid work would you be willing to volunteer to help make the project a success? Would you say you would be willing to contribute [INSERT ITEM] to help make the project happen? Please answer yes or no. *(INTERVIEWER:*

NOTE, the labor will be used for the agriculture project. If the respondent says they do not know or are not sure, please probe until the respondent provides a yes or no answer).

	Yes	No	Refused
1. Less than one day per week	1	2	8
b. One day per week	1	2	8
c. Two days per week	1	2	8
d. Three days per week	1	2	8
e. Four days per week	1	2	8
f. Five days per week	1	2	8
g. Six days per week	1	2	8
h. Seven days per week	1	2	8

Q-14. What is the maximum amount of unpaid work, in hours per week, that you will be willing to volunteer to help make the project a success? (*Interviewer, code each day as 8 hours. If the respondent says they will contribute the all the work needed to make the project successful, code 1111).*

Interviewer: write hours per week: _____

8. Refused (vol.)

9. Don't know (vol.)

Q-15. Thinking of your answers about the amount of labor you would volunteer to the project, overall, how confident would you say you are you will actually be able to work these hours? Are you very confident, somewhat confident or not at all confident?

1. Very confident

2. Somewhat confident

3. Not at all confident

8. Refused (vol.)

9. Don't know (vol.)

Interviewer, read: *There are often other ways to participate in development projects other than by paying money or by volunteering labor. These next questions are about some other ways people can help the project.*

Q-16. Would you be willing to contribute any of the following to help make the project a success? Would you [INSERT]? Please answer yes or no. (*Interviewer, if the respondent says they do not know, please probe until you receive a yes or no answer).*

	Yes	No	Refused
a. Contribute land to build on or space to use for project activities	1	2	8
b. Participate in training so you can help maintain the project after construction has been completed	1	2	8
c. Share Tools or other goods to help construct or maintain the project	1	2	8
d. Provide food or a percentage of your harvest to feed project workers	1	2	8
e. Help by encouraging others to participate in the project	1	2	8

Q-17. (Ask only if Q-20a-e are all “no”). Why did you say you would not contribute anything else to the project?

Interviewer: write response: _____

7. Respondent said would contribute something else to the project

8. Refused (vol.)

9. Don't know (vol.)

SECTION 5: DEMOGRAPHICS

INTERVIEWER READ: *“Now I would like to ask you some questions for statistical purposes.”*

D-1. Gender (INTERVIEWER, Do Not Ask: code based on your observation of the person's gender)

1. Male

2. Female

D-2a. (Ask All) How old were you on your last birthday? **(Record actual age; if respondent refuses, please estimate)**

— —

D-2b. In the previous question (D-2a) is this:

1. An estimated age
2. An actual age

D-3. How many years of formal education, from primary school through university education, have you completed?

Years (write in): _____

98. Refused (vol.)
99. Don't Know (vol.)

D-4a. What is your job status now? Are you...

0. Full-time farmer
1. Working full-time
2. Working part-time
3. Unemployed-Looking For Work
4. Unemployed-Not Looking For Work
5. Housewife (not working outside of the home)
6. Student/Apprentice
7. Retired/ Disabled

98. Refused (vol.)
99. Don't Know (vol.)

D-4b. (ASK IF RESPONDENT IS WORKING, UNEMPLOYED, OR RETIRED in D-4a codes 0, 1, 2, 3, 4 or 7): What is/was your primary occupation? **(INTERVIEWER: FOR THOSE WHO ANSWERED UNEMPLOYED OR RETIRED/DISABLED, ASK THE RESPONDENT WHAT THEIR OCCUPATION WAS WHEN THEY WERE WORKING. RECORD BELOW AND CODE).**

INTERVIEWER WRITE OCCUPATION: _____

1. Government Employee Support Staff
2. Government Employee Mid-Level (Supervisory)
3. Government Employee Senior Level Officer
4. Agricultural Laborer
5. Farming On Own Farm
6. Farm Owner Employing Laborers
7. Unskilled Worker
8. Semi-Skilled Worker
9. Skilled Worker

10. Private Employee Support Staff
11. Private Employee Mid-Level (Supervisory)
12. Private Employee Senior Officer
13. Private Business Sole Proprietor
14. Private Business Employing 1-5 Workers
15. Private Business Employing More Than 5 Workers
16. Military/Police
96. Other
97. Not Asked
98. Refused (vol.)
99. Don't Know (vol.)

D-4c. (ASK ALL) Which source of revenue would you say has contributed the most to your household income, in the past 12 months? **(DO NOT READ OUT CODE ONE RESPONSE)**

1. Sale of animals or meat products
2. Sale of dairy products
3. Salary from jobs
4. Sale of crops
5. Sale of opium/poppy
6. Money from relatives
7. Sale of land
8. Rent of oxen, tractor or other farm equipment
9. Income from sharecroppers or renters
10. Receiving walwar (bride price)
11. Other (specify:_____)

 98. Refused
 99. Don't Know

D-5. Are you the head of household?

1. Yes
2. No

 98. Refused (vol.)
 99. Don't Know (vol.)

D-6. About how many people live in your household?

Interviewer: (code response) ____

98. Refused (vol.)

99. Don't Know (vol.)

D-7. What is your marital status now? Are you currently...

1. Married?
2. Widowed or Divorced?
3. Single?

8. Refused (vol.)

9. Don't Know (vol.)

D-8. What kind of money does your household use most of the time? **INTERVIEWER, If respondent indicates that they use more than one kind of money, probe:** If you had to say which kind of money you MOST use, what would it be?

- | | |
|-------------------------------|---------------------|
| 1. Afghanis | Go to D-9a |
| 2. Kaldari (Pakistani Rupees) | SKIP to D-9b |
| 3. Other, Specify _____ | SKIP to D-10 |

8. Refused (vol.)

9. Don't Know (vol.)

D-9a. (Ask if respondent answered code 1 "Afghanis" to D-8) What is your household's total monthly income in Afghanis from all sources, that is, all types of income for all the people living at this address?

1. 1,000 Afghanis or less
2. From 1,001 to 1,500
3. From 1,501 to 2,500
4. From 2,501 to 4,000
5. From 4,001 to 6,000
6. From 6,001 to 8,000
7. From 8,001 to 12,000
8. From 12,001 to 16,000
9. From 16,001 to 20,000
10. From 20,001 to 30,000
11. From 30,001 to 40,000
12. Greater than 40,000 Afghanis?

97. Not asked

98. Refused

99. Don't Know/N.A. (vol.)

D-9b. (Ask if respondent answered code 2 “Kaldari/Pakistani Rupees” in D-8) What is your household’s total monthly income in Pakistani Rupees from all sources, that is, all types of income for all the people living at this address?

1. 2,000 Kaldari (Pakistani Rupees) or less
2. 2,001 to 3,000
3. 3,001 to 5,000
4. 5,001 to 8,000
5. 8,001 to 12,000
6. 12,001 to 16,000
7. 16,001 to 24,000
8. 24,001 to 32,000
9. 32,001 to 40,000
10. 40,001 to 60,000
11. 60,001 to 80,000
12. Greater than 80,000 Kaldari?

-
97. Not Asked
98. Refused (vol.)
99. Don’t Know (vol.)

D-10. Do you consider yourself to be...

1. Pashtun
2. Tajik
3. Uzbek
4. Turkmen
5. Hazara
6. Baloch
7. Kirghiz
8. Nuristani
9. Aimak
10. Arab
11. Kuchi

-
12. Other (vol.)
98. Refused (vol.)
99. Don't Know (vol.)

D-11. What is your religious affiliation? **(If Respondent Says Muslim Ask):** Do you consider yourself to be Shia or Sunni?

1. Shia Muslim
2. Sunni Muslim

- 7. Other (vol.)
- 8. Refused (vol.)
- 9. Don't Know (vol.)

D-12. What is your qawm?

Qawm: _____ (write in)

- 98. Refused (vol.)
- 99. Don't Know (vol.)

ADD APPROPRIATE INTERVIEWER NOTES HERE.

D-13. SES Level: INTERVIEWER: Try to ask participant about access to water and electric (for electric it can be either municipal electric or a generator). Make your own decision about quality of the road. Select the code that is closest to the appearance and situation of the household. Code 1 represents the highest household economic situation and Code 5 the lowest household economic situation.

- 1. A/B [High quality road, access to water and electric 6 to 7 days]
- 2. C+ [Good road, access to water and electric 4 to 5 days per]
- 3. C, C- [Fair road, access to water and electric only a 1 to 3 days per week]
- 4. D [Poor road, access to water and electric 1 day a week, or less]
- 5. E [Poor or no road, no or very infrequent access to water and electric]

**RECORD THE TIME (USING 24-HOUR CLOCK) INTERVIEW WAS COMPLETED
AND THE LENGTH OF THE INTERVIEW (M-14 AND M-15)**

Read Closing Statement to the Respondent:

Thank you for the time you have taken to participate in this survey. Before we complete the survey, are there any questions you would like to ask me?

Interviewer Certification: "I certify that I have completed this interview according to the instructions provided me by _____.

Signed

Date

Interviewer Code

M-22a. Interviewer: did the respondent make any comments to indicate that he or she disagreed strongly with any of the ideas underlying the scenario?

- 2. Yes

3. No

M-22b. If M-22a is 'yes', please specify:

M-23. Interviewer: Including yourself, how many people were present for the interview?

Number present: _____

M-24. Interviewer: Which of the following statements do you think best describes the level of comprehension of the survey questionnaire by the respondent?

1. The respondent understood all of the questions
2. The respondent understood most of the questions
3. The respondent understood most of the questions but with some help.
4. The respondent had difficulty understanding most of the questions, even with help from me

M-25. Interviewer: Which of the following statements best describes the level of comfort or unease that the respondent had with the survey questionnaire?

1. The respondent was comfortable (at ease) with the entire questionnaire
2. The respondent was comfortable with most of the questions
3. The respondent was comfortable with only some of the questions
4. The respondent was generally uncomfortable with the survey questionnaire

M-26. Interviewer: Please indicate which, if any, of the questions caused this respondent any uneasiness or decreased cooperation during the interview. **(Write down the number of the question numbers, in order of mention).**

- a. First Mention _____
- b. Second Mention _____
- c. Third Mention _____

To Be Completed By The Supervisor:

M-27. Was the interview subject to quality control/back-check?

1. Yes
2. No

M-28. Method of quality control/back-check

1. Direct supervision during interview
2. Back-check in person by supervisor
3. Back-check from the central office
4. Not applicable

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APPENDIX G IN-DEPTH INTERVIEW QUESTIONNAIRE

Contingent Valuation Survey Method – In Depth Interview Protocols

M-1. Respondent Identification Number: _ _ _ _ _

M-2. Interviewer Code: _ _ _ _ _

M-3. Record Time (using 24-hour clock) Interview Began: _ _ : _ _
(Record Time Began Starting With Q-1)

M-4. Record Time (using 24-hour clock) Interview Ended: _ _ : _ _
(Fill in all four data positions)

M-5. Record Length of Interview in Minutes: _ _

M-6. Language of Interview

1. Pashto 2. Dari 3. Other

M-7. Coder Code _ _

RECORD THE TIME THE ACTUAL INTERVIEW BEGUN (M-3) **AND USE A 24-HOUR CLOCK (14:24, for 2:24 pm)**

Interviewer: this interview guide is an accompaniment to the full interview. Its purpose is to asking about people's willingness to pay for various kinds of development projects. The objective of this in-depth portion of the study is to find out why people say they are willing to contribute to development projects in their area. Accordingly please make an effort to get full and complete answers from the people you are interviewing.

SECTION 1: YOUR ANSWERS TO DEVELOPMENT PROJECTS IN YOUR AREA.

Interviewer, read: As you will recall, we read you a brief development scenario in our last set of questions. I will read it for you again to refresh your memory.

[INSERT SCENARIO TEXT]

(Interviewer, look at the previous interview to determine the respondents answers to question Q-10a-h and question Q-11.)

Interviewer, read: There were some questions about the amount of money you might contribute to the proposed project. Just to remind your memory you said that you would be willing to pay _____ (give the highest value in Q-10a-h in the full interview) and you said the most you would pay for the project is _____ (list amount of AFs given in Q-11 in the full interview).

C-1. Thinking of the amount of money you said you would be willing to pay for the proposed project, can you please explain why chose this amount to contribute?

Interviewer: write response: _____

-
- 8. Refused (vol.)
 - 9. Don't know (vol.)

C-2. (Ask if Q-10h in full interview is 'no') Why did you say you would not be willing to make the maximum contribution to the proposed project?

Interviewer: write response: _____

-
- 7. Said would contribute the maximum to the proposed project
 - 8. Refused (vol.)
 - 9. Don't know (vol.)

C-3. (Ask only if Q-10a-h in full interview are all "no"). Why did you say you would not pay any funds to the project?

Interviewer: write response: _____

-
- 7. Provided an answer other than zero AF to Q-10a-h
 - 8. Refused (vol.)
 - 9. Don't know (vol.)

(Interviewer, look at the previous answers in the full interview to determine the respondents answers to question Q-13a-h and question Q-14.) Interviewer, read: There are also just a few questions about your willingness to contribute work to the project. Just as a refresher you said that you would be willing to work _____ day(s) per week (give the highest

value in Q-13a-h) and you said the most work you would donate to the project is _____ hours per week (write in amount from Q-14).

W-1. Thinking of the amount of days of work per week you said you would contribute to the proposed project, can you please explain why you chose that amount of work?

Interviewer: write response: _____

8. Refused (vol.)

9. Don't know (vol.)

W-2. (Ask only if Q-XXa-h in the full interview are all "no"). Why did you say you would not contribute any work to the proposed project?

Interviewer: write response: _____

7. Respondent said would contribute some work to the project

8. Refused (vol.)

9. Don't know (vol.)

W-3. (Ask only if Q-13h in the full interview is "no"). Why did you say you would not contribute the maximum amount of work to the proposed project?

Interviewer: write response: _____

7. Respondent said would contribute some work to the project

8. Refused (vol.)

9. Don't know (vol.)

(Interviewer, look at the respondents answers in the full interview to question Q-16a-e.)

Interviewer, read: In addition to questions about money and work, there were some other questions about your willingness to contribute. Just as a refresher, you said that you not would be willing to contribute by: _____ (list all items the respondent said 'no' to in Q-16a-e as applicable) to the project. (If the respondent said they would contribute all items Q-16a-e, code I-1 as 7).

I-1. (Ask if any Q-16a-e in the full interview is no') Why did you say you would not be willing to contribute these things to the project?

Interviewer, write response: _____

-
- 7. Respond said yes to all Q-16a-e
 - 8. Refused (vol.)
 - 9. Don't know (vol.)

Interviewer read, Thank you. That is all the questions I have for you today.

**RECORD THE TIME (USING 24-HOUR CLOCK) INTERVIEW WAS COMPLETED
AND THE LENGTH OF THE INTERVIEW (M-4 AND M-5)**

M-6. Interviewer: Which of the following statements do you think best describes the level of comprehension of the survey questionnaire by the respondent?

- 5. The respondent understood all of the questions
- 6. The respondent understood most of the questions
- 7. The respondent understood most of the questions but with some help.
- 8. The respondent had difficulty understanding most of the questions, even with help from me

M-7. Interviewer: Which of the following statements best describes the level of comfort or unease that the respondent had with the survey questionnaire?

- 5. The respondent was comfortable (at ease) with the entire questionnaire
- 6. The respondent was comfortable with most of the questions
- 7. The respondent was comfortable with only some of the questions
- 8. The respondent was generally uncomfortable with the survey questionnaire

APPENDIX H DEVELOPMENT SCENARIOS

Development Type	Scenario Wording
Agricultural Development	<p data-bbox="659 373 1421 541">Interviewer, read: "Now I would like to read a quick story to you regarding a development project in your area. Please play close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village".</p> <p data-bbox="659 583 1386 930">"The economy of Newabad Kod Barq village is negatively affected by poor agricultural development. The village needs a development project that will provide tractors and farming machinery, pesticides and insecticides, reformed seeds, dairy cows, and medicine for livestock. The villagers will form a council in order to estimate the costs and implementation of the project. The council will also take responsibility for purchasing supplies, as well as securing specialists to train local people on the proper use of farming machinery, pesticides and animal medicine.</p> <p data-bbox="659 972 1425 1243">"The project will cost 15,000,000 Afghani and take for 4 to 5 months to implement. Finally the project will benefit the people for at least 10 years depending on the maintenance of the machinery. Local people must be willing to learn to maintain the new farming equipment and the new farming techniques the program will teach. The project will improve the economy of the village through increased production and the sale of dairy and agricultural products.</p>

Development Type	Scenario Wording
Hydro Electricity	<p>Interviewer, read: "Now I would like to read a quick story to you regarding a development project in your area. Please pay close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village".</p> <p>"Villagers in Dasht e Sayed lack sufficient and consistent access to electricity. The proposed project will install small hydro-dams and a small hydroelectric facility, as well as run new electrical cables to homes and businesses in the area. The village council will coordinate with a development agency to bring the technical experience and materials for the project."</p> <p>"The entire project -- including specialists, equipment, materials and labor -- will cost 3 million Afghanis and take 7 months to complete. The hydro-electric facility should last 20 years if properly maintained before it needs to be replaced. Six villagers must complete training on how to operate and maintain the facility. The project will provide consistent electricity that will allow all villagers of Dasht e Sayed to run lights, household appliances, and basic equipment and machinery for small businesses."</p>
Road Construction	<p>Interviewer, read: "Now I would like to read a quick story to you regarding a development project in your area. Please pay close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village".</p> <p>"The lack of paved roads causes health problems and prevents traders from buying crops grown in Mokhtar village. The proposed project will level, grade and place gravel on existing roads. The village council will work with an NGO to implement this project. The NGO will provide funding, technical expertise and equipment.</p> <p>"The project will require heavy machinery and engineers as well as materials such as gravel. The project will cost approximately 1,000,000 Afghani and will be completed in 8 weeks. The project will improve transportation and market access for all people in Mokhtar village and surrounding areas. Local people will need to provide security for the road. Little maintenance of the road is required for the next 7 to 10 years.</p> <p>The road project will increase freedom of movement by road, improve access for trade, and reduce respiratory problems for the people of the village."</p>

Development Type	Scenario Wording
Irrigation	<p>Interviewer, read: “Now I would like to read a quick story to you regarding a development project in your area. Please pay close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village”.</p> <p>“The village lacks water for irrigation due to lack of repairs to the local irrigation system. The proposed project will reconstruct the irrigation canals and construct a water reservoir. The village council will coordinate with a donor for assistance as well help with planning, organizing, oversight, and purchasing of materials for the project. “</p> <p>“This project will require funding, labor, construction materials (cement, crushed rock, etc.), tools, and heavy machinery. The project will cost approximately 750,000 Afghani and will be completed in 2 to 3 months. Once completed, the project will assist all farmers in Nagabad Badlo. Reconstruction of the irrigation canals will function for 5 to 7 years before they will need to be rehabilitated. Local people must be willing to participate in canal cleaning and maintenance twice a year. Once completed, the repaired irrigation canals and water reservoir will lead to increased agricultural production and improve the overall economic situation of the area.”</p>

Development Type	Scenario Wording
Community Hall	<p>Interviewer, read: “Now I would like to read a quick story to you regarding a development project in your area. Please play close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village”.</p> <p>“The village of Faizabad lacks a community hall for events such as meetings and visits by important guests. Villagers have proposed the construction of a community hall for holding meetings and village councils, clinics, and vocational training.”</p> <p>“This project will cost 500,000 Afghani and will take 3 to 4 months to complete and will require construction specialists, labor and building materials. The village will need to donate some land where the community center will be built. The community hall will be used by all residents of Faizabad and will last between 20 years. The community must also be willing to maintain the community center by applying fresh coats of paint and keeping the building clean and in good order. The project will provide a public space to hold events such as council meetings, vocational courses and clinics. It will also provide a location to host government officials so the people of the village can present their problems to the government.”</p>

Development Type	Scenario Wording
Potable Water	<p>Interviewer, read: “Now I would like to read a quick story to you regarding a development project in your area. Please pay close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village”.</p> <p>“The village of Dehajiano Kalay does not have enough drinkable water. The proposed project will install wells, and each well will be equipped with a hand-pump. The village council will hire a contractor to dig the wells and install the hand pumps. The contractor will provide training to the villagers on how to maintain the wells and the pump hardware.”</p> <p>“This project will require funding, machinery, materials, and general labor. The cost of the project will be 400,000 Afghani, and the project should take 4 weeks to complete. Several villagers must participate in training sessions to learn how to maintain the pump hardware and test the well water to be sure that it is safe to drink. All of the people in Dehjiano Kalay will benefit. The wells should last between 10 and 50 years depending on the supply of water underground. The people of the village will be responsible for replacing the hand pump hardware and the concrete over the wells to prevent collapse and debris from clogging the wells. The wells will supply villagers with potable water.</p>

Development Type	Scenario Wording
Dam and Flood Wall Construction	<p>Interviewer, read: "Now I would like to read a quick story to you regarding a development project in your area. Please pay close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village".</p> <p>"The village has an area of agricultural land that often floods. This causes erosion of agricultural land and damages crops and houses. A dam and retaining wall is needed to protect agricultural land, crops and homes. The proposed project will hire engineers who will provide technical expertise on how to build the protective wall and the people of the village will provide labor to build the wall."</p> <p>The entire project including engineers, cement, iron bars, stone, sand, and labor will cost 4,000,000 Afghani and will take between 3 and 4 months to complete. The dam and retaining wall will benefit all of the residents of Bahader Khail, but mostly those living close to areas of agricultural land. The people of the village must also be willing to perform preventative maintenance on the dam to ensure its structural integrity. The dam and retaining wall will protect agricultural land from flooding so that it can be cultivated and agricultural production will increase. If there is a flood, houses will not be destroyed."</p>

Development Type	Scenario Wording
Jam & Juice Factory	<p>Interviewer, read: “Now I would like to read a quick story to you regarding a development project in your area. Please play close attention as I would like to ask you a few questions about how much you would be willing to pay to bring this development project to your village”.</p> <p>“Farmers in Qala e Surkh grow more fruit than they can sell before the fruit spoils. The proposed project will build a jam and juice factory to process apricots and apples into jams and juices to be sold in local markets.</p> <p>The entire project will cost about 11,000,000 Afghani and will take between 6 and 9 months to construct. Once completed all farmers who cultivate apricots and apples will be able to turn their produce into jam and juice products. The factory will last for about 10 years until fruit processing machinery will need to be replaced.</p> <p>Villagers will be trained how to operate and maintain the factory machinery and must be willing to maintain the equipment. Local people must be willing to provide security for the factory and must be willing to help run the factory machines during the harvest time. The jam and juice factory will help farmers earn more money from the fruit that now spoils.”</p>

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